On the Viability of Presentism

Allison, Rose Philippa

Awarding institution:
King's College London

On the Viability of Presentism

ROSE ALLISON

PhD in Philosophy

King's College London

Abstract

Although he does not know it, the man on the Clapham omnibus is a presentist. Or to put it more accurately, the man on the Clapham omnibus has ideas about time, which (at least) imply much of presentism. Or so I argue in this thesis. While some of our pre-theoretic ideas about time are no doubt under-determined in certain respects, the man on the bus might be alarmed to learn that the majority of philosophers claim that our intuitive views about time are naïve and wrong. This is a serious claim. And it requires a clear explanation; for it suggests that ordinary people are living under the illusion that temporal reality is a certain way, when in fact it is not. Starting from the assumption that presentism is the common-sense view of time, this thesis asks the following questions. Is presentism a viable theory? Are the metaphysical theories of time presented as the alternatives to presentism viable theories? And in what respects, if any, are these alternative theories superior to presentism, such that they require us to give up or amend our common-sense ideas about time? To answer these questions, I explain what each of these theories are, and what their commitments are. This is in order to clarify what the dispute between presentism and its rivals is really about. I then argue that despite facing a number of serious objections, there are versions of presentism that can meet these objections. I also argue that the alternatives to presentism have serious problems of their own. I therefore conclude that not only is the dispute between presentism and its rivals not settled, but also that there are good reasons to prefer presentism, as it allows us to keep many of our common-sense ideas about time.

Acknowledgements

First and foremost, I would like to thank my supervisor Chris Hughes for all his help, encouragement and support, with matters both philosophical and personal. It has been a pleasure working with Chris, and I am very grateful for his ongoing support throughout the whole MPhil/PhD process.

I would like to thank my wonderful husband Tim Pritchard for all his help and his constant support, and for proofreading my thesis. I also thank my wonderful daughter Amadea for being so good-natured and patient, while I have spent many hours working on the thesis. Special thanks go to three friends – Kathryn Pritchard, Marcela Herdova, and Sonia Mohacs – for their practical support and encouragement during the writing-up process. And last, but not least, I thank my parents Ron and Maureen for many years of love and support.

My research was funded by the Arts and Humanities Research Council and also supported by the Stebbing Scholarship, awarded by the Department of Philosophy at King's College London. I am grateful to King's College London Disability Support for funding my dyslexia assessement and providing learning support. I am also grateful to the Arts and Humanties Reseach Council for funding the various learning aids, which have been invaluable to me as a student with dyslexia.

Dedication

To the man and woman on the Clapham omnibus

Table of Contents

Chapter 4. The Varieties of Presentism

Chapter 5. Conclusion: Time on the Clapham Omnibus

> People like us, who believe in physics, know that the distinction between past, present and future is only a stubbornly persistent illusion.[1]
>
> Albert Einstein

Chapter One. Introduction: Setting the Scene

1.1 Introduction

Metaphysical theories of time are concerned with discovering the truth about the nature of temporal reality, and what it is to exist at a time. The questions they typically consider include the following. Is time real or illusory? Is time fundamental or emergent? Is only the present time real, or are other times also real? Do non-present entities exist on a par with present entities? Does time really pass or flow? Does time have a fixed direction? Is time circular, linear, or branching? What explains the apparent asymmetry in the direction of time? Why do we only have conscious experience of the present? Does our use of grammatical tense accurately represent, or correspond to, an objective distinction between past, present, and future in the world? What is the relation between time and change? And so on. These questions are often run together with distinct but closely related questions about persistence. For example, if objects persist, are they three-dimensional entities that persist by enduring; that is, by being wholly present at one time? Or are they four-dimensional entities that persist by perduring; that is to say, by being spread out in time (as most events are), and having distinct temporal parts, which exist on a par?

Different metaphysical theories of time provide different answers to these questions. A minority of philosophers hold that time is unreal.[2] *Anti-realists about time* have to explain why we experience a timeless reality as something temporal.[3] The majority of philosophers, however, are realists about time. *Realists about time* disagree as to whether only the present exists, whether only the present and the past exist, or whether all times exist.[4] Some realists about time hold that time really passes; others claim that time does not pass. *Realists about passage* typically disagree as

---

[1] Einstein (1955), p.215.
[2] McTaggart and Bradley are anti-realists about time.
[3] Even if time is unreal and its appearance is delusory, it is not a delusion that we *experience* time *as* successive. So anti-realists about time owe us an explanation of how such delusions are not actually successive.
[4] For example, presentism, the growing block, and eternalism, respectively.

to whether the passage of time consists in some kind of property change, or in propositions changing their truth-values, or in the coming into existence and going out of existence of times. In contrast, *anti-realists about passage* explain passage as some kind of psychological illusion, and/or provide deflationary accounts of passage, explained in terms of relations to times. Some realists about time are realists about tense. *Realists about tense* claim that tensed sentences express propositions that can change their truth-value. Some realists about tense claim that this is because one time is more special than another; others deny this, claiming instead that as tensed propositions are purely due to the perspectival nature of our beliefs, they can be given tenseless truth-conditions.[5] *Anti-realists about tense* claim that all propositions are eternal, and hence cannot change their truth-value. Anti-realists about tense employ various 'detensing' strategies, which either translate tensed sentences into tenseless propositions, or analyse them in terms of tenseless propositions.[6] And so it goes for other questions about temporal reality; each theory providing different, and often conflicting, answers to such questions than rival theories.

Faced with such an array of competing ideas, and often confusing answers, how are we to judge which theory is closest to correct? And what qualities make one theory more credible than its rivals? One of the aims of this thesis is to try and make these things clearer. In the section on methodology below, we consider which qualities (or desiderata) a metaphysical theory of time ought to include when it comes to answering questions about time. Among the candidates for these are elegance, parsimony, coherence with common sense, coherence with ordinary language, and coherence with our best current scientific theories. As will be explained, some of these desiderata are held to carry more weight than others.

[5] David Lewis and D. H. Mellor are B-theorists who accept the existence of (so-called) 'tensed propositions'. More accurately, Mellor allows that there are "A-propositions", which are made true by "B-facts". For Lewis, 'propositions' are typically more like properties of worlds. However, Lewis allows that the objects of propositional attitudes can be *perspectival*; as they can be properties of particular worlds, persons and times. He therefore treats the objects of some propositional attitudes as non-eternal; i.e. as things that can be true at some times and false at other times. We discuss these issues in Chapter 2.

[6] Translation schemes include date or token-reflexive analyses of tensed sentences. 'Soft-detensers' accept that more than eternal propositions are needed to capture what we mean by tensed sentences and tensed verbs.

1.2 The question this thesis examines

The particular question this thesis examines is whether any form of the metaphysical theory of time known as 'presentism' is defensible. Presentism has the immediate appeal of appearing to cohere with (or be supported by) our common-sense ideas about time, and with our ordinary temporal language. As will be explained in detail in Chapter 4, the label 'presentism' does not actually describe a single theory of time; rather it describes a variety of nuanced theories. However, what all versions of presentism have in common is that they afford an *ontologically* privileged status to the present and presently existing objects. [7]

1.3 Presentism: the core claim

For a clear definition of what I shall take to be a standard version of presentism, here is Ned Markosian's definition. Note that although Markosian uses the term 'objects' to describe what presently exists, we could equally well use the more general terms 'things' or 'entities'. He writes:

> Presentism is the view that only present objects exist. According to Presentism, if we were to make an accurate list of all the things that exist – i.e. a list of all the things that our most unrestricted quantifiers range over – there would not be a single non-present object on the list. Thus, you and I and the Taj Mahal would be on the list, but neither Socrates nor any future grandchildren of mine would be included.[8]

For the standard presentist, existence and temporal location are necessarily tied together.[9] Thus, according to presentism, to exist is to be located at (and only at) the present time. It is worth emphasizing that like most philosophers (both presentist and non-presentist), Markosian is taking the neo-Quinean view that there is only one type of existence, which is properly represented by the existential quantifier.[10] According to Quineanism, *what exists* exactly equals *what there is*. Thus for the presentist who accepts neo-Quineanism (the idea that existence and

---

[7] The theories known as 'Degree Presentism' and 'Williamsonian Presentism' are not presentist theories, because they *deny* that the present is ontologically privileged. See Chapter 3.
[8] Markosian (2004), p.76.
[9] Markosian (2013), p.130.
[10] In logic, the existential quantifier (symbolized as ∃) expresses that the statements within its scope are true for at least one thing. ∃ means 'for some', or 'there is at least one' or 'there exists'.

quantification go hand in hand), *what there is* exactly equals *what there is presently*, and *what exists presently*. The standard presentist therefore does not want to say that *there are* some merely past and merely future things, which do not exist now; rather they deny that there are such things. Hence, for any object *x*, if *there is* such an object, then *x* exists presently.

However, as Markosian's examples of non-present objects indicate, presentism is not meant to be a temporal version of solipsism. That is to say, it is not the view that there never were, or never will be, any objects other than the objects that exist now. Rather, standard presentism is the view that many non-present objects *have* existed at past times (such as Socrates), and many others *will* exist at future times (such as future grandchildren). Thus standard presentists are committed to the view that some objects exist temporarily, because some objects come into existence and go out of existence. Moreover, presentism is not the view that presently existing objects only exist instantaneously. According to presentism, the majority of present objects, including ourselves, are objects that have existed in the past, and will (hopefully) continue to exist in the future. So for the presentist, although nothing exists outside of the present, many presently existing objects are continuants. That is to say, they existed prior to the present time and will continue to exist beyond the present time. Hence presentism is meant to be a 'persistence friendly' theory.

Presentism seems like a common sense view, because it appears to accord with our everyday intuition that existing in time is fundamentally different from existing in space. A useful way to bring this out is to consider the difference between the way we use the spatial term 'here' and the temporal term 'now', with respect to existence. For example, if we think of the extension of the term 'here', we naturally think of it as having limited extension.[11] That is to say, we do not use the term 'here' to indicate *every* place that exists; rather, we use it to refer to a particular place - very often the place where we are. We know that other places (and their contents) exist in places we call 'there'. So we use the term 'here' to distinguish what is spatially present from one perspective, from what is spatially non-present (from that perspective). As the distinction between 'here' and 'there' is purely perspectival, no one thinks of this as an *ontological* distinction between what exists and what does not exist. Rather we think that other places exist in the same sense as the place we call 'here' exists.

[11] The extension of a term is the set of things the term is true of/applies to.

When it comes to existence, the distinction between 'now' and 'then' is very different. We use the term 'now' to distinguish the present time from other times; times we can refer to as 'then'. However, we do not ordinarily think that the correct application of the term 'now' is *merely* a matter of perspective. This is because we do not think that other times are like other places; that is, places which exist on an ontological par with 'here'. Instead, we typically think of non-present times as times when non-present objects and events either *did* exist or happen, or *will* exist or happen, but we do not think of them existing or happening on a par with objects and events that exist or happen now.[12] For example, most people do not think that an event, such as last year's Christmas dinner, exists in a different location (some months earlier-than now), or that tomorrow's dinner exists in a location one day later-than now. Rather, we normally think that last year's Christmas dinner does not exist because it is no longer there in the past, and tomorrow's dinner does not exist because it is not yet there in the future. Similarly, if we wanted to know how many people exist in the world, we would intuitively expect to count the people that exist now, as opposed to also counting people who have died and those yet to be born. So unlike 'here', which is merely a sub-category of all existing places, we ordinarily think of 'now' as the *only* time when individuals exist and events are happening. Thus when it comes to existence, there is a sense in which we intuitively use the term 'now' to include *everything* that exists, and to distinguish these things from things that either did exist or will exist.[13] Presentism tries to capture this common-sense intuition that time is not like space, by insisting that the term 'now' does not have limited extension, because applied correctly, it includes everything that exists.

Although presentism has the immediate appeal of appearing to cohere with (or be supported by) our common-sense ideas about time and with our ordinary temporal language, its opponents challenge it on both these issues. The majority of these objections focus on the following issue: namely, that by *restricting* the sum total of what exists to the present, presentism is too sparse a theory to accommodate many of our other common-sense ideas, or to enable us to say many of the things we ordinarily want to say. These include ideas and statements about change, causation, truth, cross-temporal relations, and temporal passage. There is also the objection that presentism is too replete. According to this objection, presentists (and

[12] As non-philosophers sometimes use words like 'exists' in ambiguous ways, they might think that the past exists *in some sense*. We consider which ideas constitute our 'common-sense view of time' in §1.16 below.
[13] Although again, see footnote 12.

other A-theorists[14]) postulate unnecessary ontological baggage, by positing tensed facts.[15] Opponents of the A-theory claim that not only are tensed facts not necessary, because the ultimate true description of reality can be given in tenseless terms, but also that tensed facts must to be reduced to tenseless facts, if we are to avoid the contradiction known as McTaggart's paradox (explained below). Furthermore, presentism faces the major empirical challenge of appearing to conflict with the Special Theory of Relativity. So despite its intuitive appeal, the default position in the philosophy of time is that presentism is false.[16] Presentism, therefore, is a theory in need of defence.

Attempts to defend presentism from the objections it faces have led many presentists to develop and augment their theories in a number of different ways. As already mentioned, we shall examine the various versions and characterizations of presentism in Chapter 4. However, for now let us take the term 'presentism' to mean the standard type of ontological thesis, which accepts the neo-Quinean view that existence and quantification go hand in hand, and is characterized by Markosian as the claim that 'only present objects exist.[17] If we want to include 'times' in our ontology, an alternative characterization of standard presentism is the view that 'only the present time and its contents exist.'[18] (For ease of expression I shall sometimes use either articulation.) I shall also sometimes speak of events as existing; this is mainly because eternalists often describe their ontology in terms of events. However, talking about events 'existing' is controversial, especially for presentists. One reason for this is that most events are spread out over time, so for the presentist they cannot be included among the things that exist, simply because they are too big to fit into the present. So, at most, the presentist could accept that instantaneous events exist. Others deny that events are things that 'exist,' and prefer to describe all events as 'things that happen'.[19] In the light of issues about the existence of times and events, we could also adopt the following more general characterization of standard presentism: presentism is the view that in our most unrestricted domain of quantification we find only presently existing entities.

---

[14] A-theorists claim that tensed properties, such as pastness, presentness and futurity are monadic properties of things, which cannot be reduced to relations to times.
[15] Tensed facts are facts that can vary in truth-value.
[16] This is a *prejudiced* default, because the majority of philosophers of time are B-theorists.
[17] 'Objects' includes people and things.
[18] Some presentists make a distinction between abstract and concrete times. On this view, only the present time is concretely realised. Other times form an abstract times series (or ersatz B-series), which stands at no temporal distance from the present.
[19] For example, Arthur Prior denies the existence of events.

To sum up, let us say that according to standard versions of presentism (hereafter presentism, unless otherwise stated), only present objects exist. Or, more generally: presentism is the view that in our most unrestricted domain of quantification we find only presently existing entities. This is the core claim of presentism. On this view, past things, such as dinosaurs and Queen Victoria *did* exist, but do so no longer, and future things, such as the first human colony on Mars *will*, or *possibly will* exist, but they do not exist yet. Presentism therefore takes the distinction between past, present and future to reflect an objective feature of reality. More specifically, presentists can be described as realists about the existence of the present and present objects, and anti-realists about the existence of the past and the future and merely past and merely future objects. Presentists are also realists about tense, as they claim that our use of tense in language is not just a matter of perspective, but rather that it reflects the fact that present is ontologically privileged.

1.4 Eternalism

Presentism is standardly contrasted with a rival theory of time known as eternalism. As with presentism, the label 'eternalism' does not describe a single theory of time. Rather it describes a variety of theories, all of which hold that time is ontologically uniform, in that past, present, and future objects (or times and their contents) all exist. According to the eternalist, all these objects exist in time and are spread out in the four-dimensional manifold.[20] On this view, dinosaurs, Queen Victoria, and (perhaps) the first human colony on Mars all exist in their various temporal locations.[21] Although some eternalists claim that the present is metaphysically special in some way, others disagree. Eternalist B-theorists claim that when we distinguish a particular time as the present (or 'now'), we are merely describing the view from our own particular temporal location.[22] Eternalist A-theorists claim that the present *is* objectively special in some non-ontological way. However, all eternalists agree that there is no *ontologically* privileged present moment or set of objects. Eternalists therefore think that the existence of non-present times and their

[20] The four-dimensional manifold is typically described as a manifold of spacetime events.
[21] Meghan Sullivan presents a non-standard version of A-theoretic eternalism; according to which dinosaurs exist non-concretely, and thus do not have a spaiotemporal location. We discuss this in Chapter 3.
[22] Hence B-theorists deny that the present is objectively or metaphysically special.

contents is much like the existence of non-present places.[23] For example, no one would claim that dogs do not exist, just because there are no dogs located in the *place* where we are located (i.e. here). Likewise, for eternalists, if we are assuming that the quantifiers are wide-open, it is not strictly or literally true to say 'dinosaurs do not exist', just because there are no dinosaurs located at the *time* when we are located (i.e. 'now'). According to the eternalist, dinosaurs exist; they just are located in the past. However, when people say 'dinosaurs do not exist' in the context of the present time, this context provides a restricted domain, according to which the statement is true.[24]

Eternalists are therefore realists about the existence of past, present, and future times and their contents. As we shall see in Chapter 3, some eternalists are realists about tense, and others are anti-realists. Eternalists are also divided with regard to how to explain change. Eternalist A-theorists hold that reality is dynamic, and thus reality changes as time passes. B-theorists reject this idea, and provide accounts of change that do not involve reality itself changing.

1.5 Semi-eternalism

In between presentism and eternalism there is a third kind of theory, which I call semi-eternalism. The most common version of semi-eternalism is the growing block.[25] According to growing block theorists, things that *there were* and things that *there are* exist, but not things that *there will be* (unless they are already in existence). On this view, to be present is to be located at the edge of the growing block of reality; a reality that continues to grow as new events come into existence successively. Growing blockers are therefore realists about the existence of the past and present, but they are anti-realists about the existence of the future. They are also realists about tense.

To sum up thus far. We have seen that the core claim of presentism is the claim that only present objects (or entities) exist. And we have also seen that this claim is contrasted with that of rival theories; namely, eternalism and semi-eternalism, both of which deny that only present objects exist. In standard versions of presentism,

[23] Again, some care in needed with this claim. Issues about what *existing at non-present times* consists of will be fleshed out in Chapter 3.
[24] Lewis, for example, thinks that certain claims said now (such as 'there are no dinosaurs') can be strictly and literally true, because the context automatically provides a restricted domain.
[25] Another version of semi-eternalism is Storrs McCall's 'Shrinking Tree'.

the claim that only present objects exist is typically coupled with a second related but distinct key claim, which is the claim that time flows or passes.[26] Presentists see this additional claim as another merit of their theory, as our experience of the passage of time is a fundamental part of our common sense ideas about time, and what it is to exist at a time. However, before we examine this additional claim, there is a particular objection to the core claim of presentism, which I want to address. This is called the triviality problem.[27] Although the main objections to presentism are discussed in later chapters, my reason for bringing *this* particular objection up here is to get it out of the way. The triviality problem touches upon a number of related issues, which will be discussed in later chapters.

1.6 The triviality problem

Presentists clearly consider themselves to be engaged in a substantial disagreement with eternalists. As the presentist Trenton Merricks writes:

> Presentism and eternalism differ most fundamentally with respect to the nature of time and, relatedly, with what it is to exist at a time (and to have properties at a time).[28]

While most eternalists agree with their presentist rivals that there is a substantial disagreement between them, there are a number of eternalists (and others) who challenge this.[29] Philosophers sceptical about whether the dispute between presentism and eternalism is substantial, typically target the presentist's core claim that 'only present objects exist'. These sceptics argue that there is a temporal equivocation in the way eternalists and presentists use the term 'exists', and that once the term 'exists' is disambiguated, it becomes clear that presentism is either trivially true, or obviously false. On this view, presentism is either false, or it is compatible with eternalism, in which case presentists and eternalists are just talking past one another.

The dilemma is presented as follows. The presentist claims that *only present objects exist*. The presentist typically takes existence as a primitive notion, which

---

[26] K. Miller (2013), p. 346.
[27] The triviality problem is seen as an objection to *presentism*, because eternalists do not need to articulate their view in an ontologically restrictive sense.
[28] See Merricks (2007), p.124.
[29] For example, Savitt, Callender, Dorato, and Meyer.

includes everything our most unrestricted quantifiers range over. So the question is, does the presentist take the verb 'exists' to be tensed or tenseless? If 'exists' is tensed, then to predicate the property of existing of some objects will mean that those objects have the *tensed* property of existing; i.e. the property of presently existing (or existing now).[30] In this case, the presentist's claim amounts to the claim that:

*Only present objects exist presently (*or *exist now).*

The problem here is that although this claim is true, it is trivially true.[31] The presentist has not said anything the eternalist would disagree with. The eternalist can accept that only present objects exist presently, and still accept that past and future objects exist in other temporal locations. So it seems that the presentist has not made a substantial or interesting claim.

Alternatively, suppose the presentist takes the verb 'exist' to be untensed (i.e. tenseless). An untensed notion of existence is one that is not orientated towards any particular time, which is held to be the present. Thus, to exist (untensed) means to exist 'at some time or other'. In this case, to predicate the property of existing of some objects is to say that those objects have the *untensed* property of existing, which will mean something equivalent to 'did exist, exists, or will exist'. The presentist's claim thus becomes:

Only present objects did exist, exist now, or will exist.

The problem here is that this claim is obviously false. It is obviously false because there are lots of past and future objects that are not present. For example, Queen Victoria *did* exist, but she is not a present object. Martian outposts *will* exist (let's assume), but they are not present objects. So the dilemma seems to be that whether the presentist formulates her theory using a tensed or tenseless notion of existence, she either says something trivially true, or obviously false. So even if presentism is true, it is not a substantial or interesting thesis, because the presentist

[30] If 'exists' is always tensed, it will be part of the meaning of 'exists' that if a thing exists, it exists now.
[31] It is trivially true because under any interpretation of what it is to exist, this claim will be true.

has said nothing that makes her claim substantially distinct from the eternalist's claim.[32]

1.7 How might the presentist respond?

There are a number of ways for the presentist to respond, and I shall briefly outline three of these. One response, suggested by Markosian, is to say that we can understand a tense-neutral notion of 'exists'. A tense-neutral notion of existence is one that is not tied, in virtue of its meaning, to a particular temporal domain.[33] That is to say, 'exists' in this sense is neither tied to the domain of *just present things*, nor tied to the domain of things that exist *at some time or other*. Supporters of this view claim that they can use this tense-neutral notion of existence to articulate their disagreement (between presentism and eternalism) in a substantial way. As Markosian explains, 'once the two parties accept that `x exists' and `x is present' are not synonymous, they can agree that their dispute is over the question of whether these two expressions are always co-extensive.'[34] For example, suppose the presentist says,

> In the tense-neutral sense there are no dinosaurs.

What the presentist means is that according to her most unrestricted domain of quantification there are (or there exist) no dinosaurs.

Similarly, suppose the eternalist says,

> In the tense-neutral sense there are dinosaurs.

What the eternalist means is that according to her most unrestricted domain of quantification there are (or there exist) dinosaurs.

---

[32] In order to be interestingly true, the presentist needs to distinguish her view from eternalism by expressing it in such a way as to *avoid* ontological commitment to merely past and merely future objects. The eternalist, however, is under no such pressure to restrict her ontological commitments in order to make her view interestingly true.
[33] We could also call this existence *simpliciter*.
[34] Markosian (1994), p.245.

By using this tense-neutral notion of existence (instead of using a primitive tensed notion of exists) the presentist can articulate her claim and avoid making the trivially true claim that no dinosaurs exist presently (or now). Likewise, by using this tense-neutral notion of existence (rather than an untensed one), the eternalist can state her view in such a way that presentism does not turn out to be committed to the obviously false claim that dinosaurs did, do, or will exist. Because they can formulate their respective claims using the same (tense-neutral) notion of existence, the presentist and the eternalist can claim that they are not just talking past each other. They can therefore have a substantial dispute, because it becomes clear about what they disagree about; namely, which temporal entities exist in our most unrestricted domain of quantification.

Not everyone would want to accept this tense-neutral account of existence. Indeed, some presentists insist that their notion of exists is irreducibly tensed.[35] However, here is another argument that recommends a 'neutral' understanding of existence. This argument focuses on the modal dispute between actualists and possibilists. Actualism is the modal doctrine that only actual objects exist. The actualist therefore claims that there are no non-actual or merely possible objects.[36] There are two types of possibilist. Classical possibilism (hereafter possibilism) is the view that there are non-actual or merely possible things. On this view, other possible worlds are seen as some kind of abstract objects, which have a different ontological status from the actual concrete world. The Lewisian possibilist or modal realist disagrees. Lewis claims that there is no difference *in ontological status* between what is actual and what is merely possible. According to Lewis, as other possible worlds exist on an ontological par with our world, the term 'actual' should be seen as an indexical term, which functions much like the term 'here'.[37] On this view, 'actual' functions as a relative and perspectival term, as it indicates the world belonging to the speaker; but it does not function as an absolute term, which indicates an ontologically privileged world. Lewis therefore uses the term 'concrete' to describe the nature of alternative possible worlds *and* the nature of this world (which we call

[35] For example, Prior and Ludlow. We consider whether Prior's *tensed* notion of 'exists' avoids the triviality objection in Chapter 2.
[36] Hence presentism is the temporal analogue of actualism, as the presentist claims that only present objects exist.
[37] Lewis (1973), p.86. For Lewis actuality is not 'all there is'.

'actual'), as they all exist on a par.[38] Modal realism is thus a radical type of possibilism, which no one other than Lewis endorses.

It is widely accepted that the dispute between actualists and possibilists is a substantial one. But in order for this dispute to be substantial, the actualist and the possibilist have to come up with a notion of existence that is independent (with respect to meaning) from actuality. Otherwise, when the actualist says 'only actual things exist', she would mean the trivial truth that:

> Only actual things exist actually. (Or, only things that exist in the actual world exist in the actual world.)

The problem here is that no one would disagree with this claim, so it does not say anything substantial that distinguishes actualism from either possibilism or modal realism. For example, both the possibilist and the Lewisian modal realist can accept this claim, and still hold that there are other things that exist; i.e. possible things (which for the possibilist are abstract, and for Lewis are concrete).

Suppose then that 'exists' does not mean 'exists actually' (or 'exists in the actual world'), but means 'exists in the actual world or exists in some possible world.' On this understanding, the actualist's claim ('only actual things exist') would be equivalent to the claim that:

> Only actual things exist in the actual world or in some possible world.

The problem here is that this claim is obviously false. It is obviously false because there are lots of things that *do* exist in other possible worlds, which do not exist in the actual world. For example, my merely possible younger sister is not an actual sister.

The point being made here is this. If we accept that there *is* a substantial dispute between actualists and possibilists (as most people do), then there must be some kind of 'world-neutral' notion of existence that makes this dispute substantial. As metioned above, this needs to be a notion of existence which is independent (with

[38] Lewis is aware that the distinction between 'abstract' and 'concrete' can be used ambiguously. He therefore considers four different ways of understanding this distinction, to show that, properly understood, the term 'concrete' applies to worlds.

respect to its meaning) from actuality. So, the argument here is that because it is accepted that there *is* a substantial dispute between actualist and possibilist, then by parallel reasoning it should also be accepted that there is a substantial dispute between presentists and eternalists.

A third way to illustrate that the issue that presentists and eternalists disagree about is substantial is suggested by Chris Wuthrich. This involves considering how some physicists describe the dispute between presentism and eternalism, which is in terms of what comprises the sum total of *physical* existence. Wuthrich says that on this view, presentism and eternalism are 'taken to disagree as to which sets of events or spacetime points they quantify, *cum ontological commitment qua physical existents*, or as to at which spatiotemporal locations existing entities can be.'[39] For example, Wuthrich explains that eternalists award existence to all events in the four-dimensional manifold, with their spatio-temporal properties given by the relations among them. In contrast, presentists take the sum total of physical existence to be comprised of a spatially extended universe-wide moment; a global 'now', or absolute present, containing a single slice of events (or set of objects), related by an equivalence relation (simultaneity).[40] Wuthrich says that on this view, 'time, for the presentist, then is the one-dimensional linearly ordered quotient set induced by *S* [the simultaneity relation]'.[41] Hence he says:

> As can be directly seen from these formulations, presentism and eternalism have a substantive disagreement. Their respective sets of existing spacetime events are simply non-identical in that the presentist's is a proper sub-set of the eternalist's. Furthermore, presentism requires a well-defined equivalence relation, but eternalism does not.[42]

Wuthrich says that although it is open to a critic of presentism to deny that these two positions are *empirically* distinct (because they are experimentally equivalent),[43] this does not undermine the fact that the two positions are at least *metaphysically* distinct. Thus this illustrates a way in which presentists and eternalists see

---

[39] Wuthrich (2012), p.446.
[40] An equivalence relation is a *binary* relation, which is at the same time a reflexive, symmetric, and transitive relation.
[41] Ibid.
[42] Ibid.
[43] According to this objection, presentism and eternalism merely describe different perspectives on the same reality. The presentist describes a perspective from within time, whereas the eternalist describes a perspective from outside time. (See also C. Callender (2012) pp.93.)

themselves as having a substantial disagreement. We shall revisit these issues in other contexts in later chapters. But this should make it clear that the dispute between presentists and eternalists is not trivial.

1.8 Presentism: the second claim – time passes

As mentioned above, in standard versions of presentism, the claim that only present objects exist is typically coupled with a second (but distinct) claim, which is that time flows or passes. The so-called 'passage of time' is the process in which events that are at one time held to be future are said to become present, and then subsequently to recede into the past. This idea is closely linked to ideas about change. All philosophers of time agree that we *experience* time as a continual and ordered updating process, one in which each present moment or 'now' is succeeded by the next. What they disagree about is how this 'dynamic' or apparently changing aspect of our experience is to be explained. According to eternalists, the passage of time is not to be explained in terms of *ontological* change, as for them reality is ontologically uniform. This is because eternalists are committed to the view that reality consists of an unchanging domain of permanently existing objects, which are spread out in time across a four-dimensional manifold. They therefore have to explain the 'so-called' passage of time in ways that are consistent with an unvarying domain. Because eternalists differ quite a lot amongst themselves about other metaphysical commitments, different eternalists provide very different accounts of temporal passage.[44] We shall consider these accounts in Chapter 3.

For the presentist, however, the claim that time passes is an ontological claim. It is a claim about the nature of the physical world. That is to say, the passage of time is the physical updating process in which unique moments of time are continuously coming into existence and going out of existence. More specifically, this updating process consists in a continuous and ordered series of fleeting moments, in which a new present moment comes into existence, and the previous present moment goes out of existence, and hence becomes past. Presentists are thus committed to the view that reality consists of a changing domain of temporally existing objects. The passage of time not only gives time its dynamic nature; it also gives time an ordered and fixed direction, as time is always moving towards the future. The presentist's

[44] For B-theoretic eternalists, temporal passage is either an illusion or *variation* in the four-dimensional manifold. For A-theoretic eternalists passage typically involves some kind of A-property change, resulting in ordered succession of times being held to be uniquely present.

account of the passage of time has implications for their views about the nature of change and about certain transient truths and propositions that are temporally true. We address these accounts in further chapters.

Presentism thus typically consists of two distinct claims: the core claim about the privileged existence of the present, and the additional claim about the passage of time.[45] Both these claims give presentism its intuitive appeal. As a metaphysical theory of time, presentism appears to provide straightforward explanations for a number of our ordinary beliefs and experiences about time. For example, it appears to provide a straightforward explanation of our experience of only ever being consciously located at the present; namely, that this is the only place we are located. Presentism also appears to explain our experience of the passage of time and the direction of time, as the present appears to be continuously updated, as we move towards the future. The idea of this future-directed moving present (or moving now) provides an explanation for the apparent asymmetry between the past and the future; such as the fact that we remember the past, but have no memory of the future. This, in turn, sits nicely with the intuitive idea that the future is open and the past is fixed.[46] Presentism also corresponds to our ordinary use of tensed language, as we always speak about non-present times and their contents from the perspective of the present. All these features suggest that there are good grounds for claiming that presentism is the common sense view of time.

No one denies that presentism seems to have intuitive appeal. However, as outlined above, presentism faces a number of serious objections, both from metaphysics and from physics. We can divide these objections into two groups. The first group of objections target problems with the core claim of presentism; namely, that only present objects exist. Among these objections are difficulties with the notion of the present itself,[47] difficulties with accounting for truths about non-present objects, and difficulties with explaining cross-temporal relations that involve non-present objects. In response to the first objection, the presentist has to find a plausible argument to show that the notion of the present depends on a distinction between intervals of time and instants of time. In response to these last two

[45] A presentist need not be committed to this claim about passage. For example, in a world consisting of just one static instant of time, presentism would be true. However, most presentists are committed to dynamic presentism and the commonsense view that time passes.
[46] However, note that both passage and the asymmetry between past and future are compatible with the future being fully determined and fixed.
[47] For example, Augustine's 'vanishing present'.

objections, the presentist either has to find ways to talk truthfully about non-present objects that are not ontologically committing, or find substitutes or paraphrased explanations for such truths. There are also non-standard versions of presentism, which employ different strategies to account for truths about, and relations to, non-present objects.

The other serious objection to presentism's core claim comes from physics. Standard interpretations of the special theory of relativity (hereafter SR) tell us that there is no such thing as absolute simultaneity. Without the notion of absolute simultaneity, the notion of an absolute present or 'global now' cannot be had. For example, we saw above that presentism requires that physical reality is comprised by a unique ontologically privileged set of events (or objects or entities), which are related by a two-place relation of simultaneity, according to which every event is absolutely simultaneous with every other event. However, SR (as standardly interpreted) tells us that simultaneity is a three-place relation, such that *e* and *e** are simultaneous with respect to a frame *F*. This means that while *e* is simultaneous with *e** in frame *F*, *e* may not be simultaneous with *e** in a different frame *F**. Thus, it is claimed that if simultaneity is frame-relative, what is happening *now* is frame-relative. But it cannot be that what *exists* is frame-relative. So there exists no uniquely privileged set of events that are happening now. Thus presentism must be false. We explore how the presentist might respond to this objection below.

The second group of objections focus on problems with the presentist's account of the passage of time; namely, that the passage of time consists in the coming into existence and going out of existence of times. These include difficulties with the notions of change, temporal succession, and difficulties explaining the rate at which time passes. As will be explained, even if these objections do not prove fatal to presentism, they challenge the idea that presentism is a common sense view of time in two ways. Firstly, this is because presentists often find themselves pushed into positions where they have to tell quite complicated stories to account for many of our ordinary ideas about the passage of time and the rate of flow. Second, as non-presentists provide alternative accounts for the passage of time, they claim to capture our common sense ideas about time in ways that the presentist cannot. We look at these issues in Chapter 3.

There is another objection, which does not target presentism specifically. This is the objection that the A-theory of time is false. Presentism comes under the banner of

metaphysical theories of time known as A-theories, so if the A-theory is false, presentism will also turn out to be false. This objection cuts across both the core claim of presentism and the claim about the passage of time. This objection is addressed in Chapter 2. However, I shall now explain what the A-theory and B-theory are.

1.9 The A-theory and the B-theory

The A-theory of time and the B-theory of time are theories that have developed from McTaggart's original 1908 distinction between the A-series and the B-series. As we shall consider McTaggart's argument in detail in Chapter 2, it is just summarized here. McTaggart distinguished the two ways of ordering events in time, which he called the A-series and the B-series. We can also describe this as two ways of ordering times. The A-series is the series of events (or times) running from future to present to past. Positions in the A-series are not permanent, because whether something is future, present, or past changes over time. The London 2012 Olympics for example, was once future, then it became present, and now it is past. A key feature of the A-series is that A-characteristics, such as being past, yesterday, or next year, can only be ascribed from a standpoint *within* the series, which is taken to be the present. A-characteristics are typically described as monadic properties, which can be ascribed to events, objects, and times.[48]

In the B-series, there is an ordering over the events, and the relation of is-earlier-than, is-later-than, or is simultaneous-with, for all events. It is thus assumed that this gives a complete linear ordering.[49] So for all events, it's fixed whether one is earlier-than, later-than, or at the same-time-as, every other event.[50] The terms of the B-series, known as B-relations, are thus permanent relations. This is because if event E_1 is earlier-than event E_2, E_1 will always be earlier-than E_2, regardless of whether E_1 is present and E_2 is future, or E_1 is past and E_2 is present. For example, the Rio Olympics will always stand in the later-than relation to the London Olympics, regardless of whether the Rio Olympics are past, present, or future. Hence a key feature of the B-series is that B-characteristics, such a being four years earlier-than,

[48] Whether one is happy to ascribe properties to times, depends on whether times are accepted into one's ontology. McTaggart thought of A-characteristics as *relations* (between an event and something outside time), although he admitted he could be mistaken. McTaggart (1927) §328.
[49] The ordering relation on the series of events is antisymmetric, transitive and total.
[50] Hence the B-series assumes eternalism – because *all* relata (events) in the series must exist in order to be related by these temporal B-relations.

or lasting one week, do not appear to involve a relation to a particular present or standpoint from within the time series.

Having distinguished these two series, McTaggart argued that without the A-series, the unchanging and permanent relations of the B-series are not a time series, as time requires change. So without the A-series, time does not exist. However, McTaggart then argued that the A-series is paradoxical, because it is inherently contradictory (explained in Chapter 2). He therefore concluded that time is unreal.

Although almost no one accepts McTaggart's radical conclusion, the distinction between the A-theory and the B-theory remains a major fault line in the philosophy of time. For A-theorists, the distinction between past, present, and future is central to their view. For them, tense is a feature of reality, as opposed to being merely a convenient and perspectival feature of language. A-theorists typically agree with McTaggart's idea that the B-series is unable to account for change, or provide an adequate account of the passage of time. They also claim that the tenseless relations of the B-theory leave out something essential to time; namely our embedded perspective from a particular present. However, B-theorists typically claim that the A-theory is false for a number of reasons. Many B-theorists claim the A-theory cannot escape McTaggart's paradox (see Chapter 2).[51] B-theorists also claim that it is the A-theory, and not the B-theory, which cannot adequately account for change and passage. Moreover, B-theorists argue that the A-theory adds in unnecessary 'A-properties', (such as pastness, presentness and futurity) which do not exist in reality. B-theorists claim instead that all statements phrased in tensed language are made true by tenseless B-theoretic facts (B-facts). Hence they either deny the existence of tensed or A-theoretic facts (A-facts) and tensed truth-makers, or deny that these are necessary when it comes to giving the ultimate true description of reality. If these arguments against the A-theory are successful, they will also be successful arguments against presentism. Thus part of the task of defending presentism will involve answering these objections from the B-theory. We address this issue in Chapters 2 and 4.

[51] Some B-theorists accept that presentism escapes McTaggart's paradox. However, they reject presentism as a viable solution, on the grounds that presentism is false.

1.10 Outline of the thesis

This thesis consists of four main chapters, followed by a short conclusion. Chapter 1 is largely introductory, and sets the scene for the rest of the thesis. It includes an overview of the issues examined in each chapter, and explanation of some methodological issues. It also looks at some of the initial reasons for claiming that our pre-theoretic or commonsense ideas about time are best captured by presentism. Chapter 2 examines McTaggart's argument for the unreality of time, and explains how the A- and B-theories of time have developed as responses to McTaggart's paradox. We then consider some of those responses. The first A-theoretic response considered is Michael Dummett's reconstruction of McTaggart's argument, and this is followed by an overview of other A-theoretic responses. The B-theoretic responses considered here include a discussion of the various attempts to eliminate tense from language. We then consider D.H. Mellor's indexical B-theory, where Mellor argues that although some tensed statements cannot be reduced to tenseless statements, this is unproblematic because we do not need any tensed facts in order to make tensed statements true.

Chapter 3 focuses on non-presentist metaphysical theories of time, and explains how they have developed as responses to McTaggart paradox. The chapter has two main parts. Part one focuses on the B-theory. Here we outline some motivations for the B-theory, and then consider B-theoretic accounts of change. Part two focuses on non-presentist A-theories. Here we consider A-theoretic eternalism, including the moving spotlight theory, a version of 'Williamsonian Presentism' and 'degree presentism', versions of semi-eternalism, including the growing block theory and the 'shrinking tree'. The chapter concludes with a discussion of Kit Fine's non-standard realism about tense.

Chapter 4 focuses on presentism. The chapter begins by explaining some of the main problems facing presentism, and explains how the different varieties of presentism have developed as responses to those challenges. The chapter divides the versions of presentism into two main groups. The first group contains versions of presentism that accept the Quinean idea that what exists exactly equals what there is. Due to their sparse ontology, presentists in this group have to develop various ways to account for truths about non-present entities, and relations involving such entities. The second part of the chapter considers versions of presentism that accept the neo-Meinongian idea that what *exists* is a sub-set of the domain of what

there is. I call these versions of presentism Neo-Meinongian presentism. Neo-Meinongian presentism avoids many of the difficulties that standard versions of presentism have when it comes to explaining truths about non-existent objects and relations involving non-existent objects.

Chapter 5 contains a short conclusion, which involves a cost-benefit analysis of the issues involved in defending presentism.

1.11 Metaphysics and Physics

As this outline makes clear, the majority of the objections to presentism considered in the thesis are metaphysical objections. One reason for this is that I am not a physicist, and therefore lack the expertise to examine the objections from physics in any great detail. The discussion of the issues physics raises for presentism therefore relies heavily on what people who have a better understanding of the physics have written on the subject. However, it is also because the metaphysical objections to presentism are interesting in their own right. Very often the case against presentism is presented as a cumulative argument; that is to say, as a series of inconclusive metaphysical arguments, with the argument from SR added in to sound the death knell. The problem with this approach is that it tends to obscure what is right or wrong with the individual arguments against presentism, and thus obscures what is right or wrong with presentism itself. Treating the metaphysical objections to presentism individually and independently from the objections from physics (wherever possible) therefore brings greater clarity to the whole debate. Moreover, if presentism cannot meet the a priori or metaphysical objections against it, then it becomes irrelevant to ask whether presentism can meet the empirical objections to it from physics. Of course, one might object here that it is equally irrelevant to ask whether presentism can meet the metaphysical objections to it, if it cannot meet the objections from physics. So let me briefly say something about this.

For some, the claim that presentism is incompatible with SR is reason enough to dismiss presentism out of hand. I agree that if there were no viable responses available to the presentist with which to address the objection from SR, then trying to defend presentism by considering whether it can meet the *metaphysical* objections to it would be rather pointless. However, there are responses available to the presentist, with which to resist the objection from SR. One option involves amending presentism, in order to make it compatible with standard interpretations of

SR.[52] However, as this invloves saying that being present is a relative matter, it is not an attractive option for traditional presentists. The more popular option is to challenge standard interpretations of SR in various ways.[53] Opponents of presentism are critical of these responses, often charging non-standard interpretations of SR with being ad hoc.[54] However, as long as there are defensible responses available to the presentist, this is all she needs to justify her claim that considering whether presentism can meet the metaphysical objections to it is an important question to ask. These considerations lead nicely into a discussion of methodological issues; but before we consider these, I want to make a slight digression to say something more about physics.

1.12 A slight digression

It is important to be aware that what physics tells us about the nature or reality of time is not a settled question. Physicists who are non-instrumentalists are, like metaphysicians, looking for realist explanations of the world.[55] That is to say, they do not want their theories to merely provide successful predictions; they want their theories to describe the world as it really is. The current situation in physics is that despite the undisputed empirical success of general relativity and quantum mechanics, these theories are not compatible. What this means is that physics does not yet have a theory of quantum gravity, or 'theory of everything' which unites these two theories, and describes the world as it fundamentally is. The fact that the rules of general relativity do not apply in black holes or at the big bang, suggests that there are some other, more fundamental, rules at play in physics. This has led respected theoretical physicists to develop theories such as string theory (where there are eleven dimensions in the universe); and interpretations of string theory according to which we actually live in a two-dimensional 'hologram universe', consisting of quantum information, which is stored on the event horizon of a black

[52] For example, Stein's 'point presentism', and an amendment of this view, which Hinchliff calls 'cone presentism' (or 'here-now ism'). These views involve the idea that what is present is *relative* to an individual's light-cone, resulting in a fragmented view of time.

[53] Presentist strategies include denying that SR is one of our best physical theories or claiming that SR is false. Presentists in this category include Zimmerman, Markosian, Craig, Prior, and Bourne.

[54] For example, the argument that the Lorentzian interpretation of SR is empirically equivalent to the Minkowski interpretation is held to be ad hoc.

[55] In contrast, 'instrumentalists' think that theories are useful for explaining and predicting physical phenomena, but they do not necessarily describe the world. Instrumentalism is informally summed-up by the phrase 'shut up and calculate'.

hole.[56] Although these views sound extreme, the point being made here is that physicists accept that the four-dimensional spacetime manifold described by Einstein and Minkowski, does not describe reality as it fundamentally is.

Quantum mechanics is also a theory with problems to solve, as it seems to be based on rules that are contradictory. Quantum theory describes the behaviour of atomic and sub-atomic particles in terms of *probabilities*. More specifically, the mathematical formula known as the wavefunction describes the behaviour of a particle (known as its quantum state) as it evolves in time. And it does this according to another equation, known as the Schrödinger equation.[57] However, the wave in question describes the evolution of the whole quantum state, not just the wave characteristics of the individual particle. Because of this, quantum theory can only predict the *probability* of finding a particular particle in one location rather than another; and hence the wave is known as a 'probability wave'. We can understand this as analogous to the fact that a casino can predict with great accuracy the chances of winning a game, but it cannot predict when a particular individual will win that game. According to quantum mechanics, the only way to find out the actual position or state of a particle is to observe or measure it. Thus, it is only at the point of measurement that all the probabilities of the particle being here or there 'collapse' into one certain outcome; otherwise its state remains genuinely uncertain. That is to say, it remains in a state of probabilities until it is measured. This strange result has become known as 'the measurement problem.'

Einstein refused to accept that there was any uncertainty in physics. He therefore devised a thought experiment (known as the EPR experiment[58]) to show that quantum theory was incomplete, and that particles behaved in a fully deterministic way. What the EPR thought experiment showed was that for any particle split into two, these two new particles are such that even when they are separated by vast distances, if we measured the properties of one particle we would know for certain what the properties (or quantum state) of the other particle are. This strange prediction is known as entanglement.[59] Entanglement predicts that two particles can become entangled if they are close together for their properties to be linked.

---

[56] String theorsts include Brian Greene and Ed Witten. Leonard Susskind developed the holographic interpretation of string theory.

[57] The value of the wave function of a particle at a given point of space and time is related to the likelihood of the particle's being there at the time.

[58] Einstein, Podolski and Rosen (1935).

[59] Entanglement is a theoretical prediction that comes from the equations of quantum mechanics.

Einstein took this as proof that these outcomes were completely determined beforehand and that no probabilities were involved. He therefore claimed that quantum mechanics was a correct but incomplete theory.

However, Einstein's deterministic interpretation of the EPR experiment was not the only option. A different interpretation takes entanglement to show something very different. For example, the results of the EPR experiment could also be interpreted as showing that for any two particles that become entangled, those particles *remain* connected in such a way that even when vast distances separate them, measuring the properties of one particle *instantaneously affects* the properties of the other.[60] This interpretation violates Einstein's rule that nothing can travel faster than the speed of light. Einstein called the idea that particles could communicate or affect each other in this way 'spooky action at a distance.' Einstein denied that such a thing was possible, and as there was no way to establish which interpretation was correct, he continued to maintain that quantum mechanics was incomplete. However, in 1964 John Bell devised a way to show whether 'spooky action at a distance' really did account for the communication between entangled particles. Bell also provided equations to show that if 'spooky action at a distance' did not account for the apparent communication between entangled particles, then QM was not merely incomplete; it was wrong. Moreover, Bell's equations showed a way for this to be tested empirically.[61] The phenomenon of 'spooky action at a distance' has since been confirmed empirically.[62] What this shows is that the rules of quantum mechanics do seem to be inherently contradictory. That is to say, the dynamical predictions of quantum mechanics (the deterministic evolution of the wavefunction described by the Schrödinger equation) are contradicted by what happens when we make measurements (the indeterministic rules that govern the collapse of the wavefunction). The measurement problem is thus confirmed as *the* problem of quantum mechanics. It is the problem of accounting for the relation between this collapse process and the dynamical predictions it seems to contradict.

According to physicists, the explanation can only be one of three things. Bell outlined two of these in his famous statement about the measurement problem. He said, 'either the wavefunction as given by the Schrodinger equation is not everything or it's not right.' Some physicists maintain that 'it's not right', because the probability

[60] Greene (2004), pp.80-84.
[61] Hence Bell turned the theoretical question into an experimental question.
[62] Bell's equations were first confirmed empirically by John Clauser and Alain Aspect in 1972.

wave collapses into a definite outcome as soon as we measure or observe it.[63] This view implies that absolute simultaneity is involved when a measurement is made, as collapse affects entangled particles instantaneously regardless of the distance between them. Others maintain that 'it's not everything;' that is to say, there must be some hidden variables in play that are as yet unaccounted for. This implies that quantum mechanics is still incomplete. On this view, collapse is only something phenomenological.[64] Neither option (being incomplete or mistaken) is satisfactory for quantum theory. The third option is the Many Worlds interpretation of quantum mechanics. According to the Many Worlds interpretation, the wavefunction as given by the Schrödinger equation *is* everything (is complete) and *it is* right. This interpretation is also known as Everettian quantum mechanics or the Everettian interpretation.[65]

According to Everettian quantum mechanics (EQM) we do not live in a single universe with linear time. Rather, we live in a multiverse, in which different times are actually different universes, billions of which are branching off at each moment; that is, each time an observation or measurement occurs. EQM presents us with an interpretation of quantum mechanics, which is completely deterministic. On this view, all Einstein's worries about uncertainty are taken care of because there are no merely probable outcomes. Instead, there are such an infinite number of these other universes (or times) that everything that can happen does happen. The 'apparent' collapse of the wavefunction is thus explained by the branching nature of the multiverse, which determines *all* outcomes. EQM therefore explains the relationship between apparently indeterminist rules that govern collapse and the dynamic predictions of quantum mechanics, by showing that in reality there is no collapse, and hence there is no conflict between the rules of quantum mechanics. As EQM is the only interpretation that properly explains the measurement problem, it is held to be our best current physics, and accordingly, all these other branches are held to be real. Of course, this is contested by those who favour alternative interpretations of quantum mechanics.

The point of this digression is to make it clear that what physics tells us about the fundamental structure of world (and hence time) is not a completely settled question.

---

[63] For example, Nils Bohr's Copenhagen Interpretation.
[64] This option does not rule out the possibility that absolute simultaneity might be involved in some way.
[65] Based on the work of Hugh Everett III.

This is not to say that any possible alternatives to the orthodox view (the view that we live in the four-dimensional spacetime manifold, as described by Einstein and Minkowski) are necessarily going to favour presentism. Rather, it is to point out that those who are very quick to dismiss presentism as false, on the grounds that it conflicts with SR, need to bear in mind that whichever alternative metaphysical theory of time they favour, that theory might also not be standing on such firm scientific ground. For example, if 'in reality' we live in a two-dimensional hologram universe, then the four-dimensional manifold is just an illusion. In this case, eternalism would have no advantage over presentism, as far a science goes, and both theories would simply be left with the task of explaining the phenomenology of our temporal experience. However, it is also possible that new discoveries in physics *could* favour presentism. So what we can conclude from this is that as long as physics remains inconclusive as to the fundamental structure of reality, we should at least bear in mind that the orthodox view might not be the correct picture of reality. As most non-presentists take compatibility with physics to be an advantage their theories enjoy, they should at least be aware that this might not be the case. What our best current physics is telling us about the world might be quite different. With these points made, let us move on to the methodology.

1.13 Methodology

In her paper 'On methodology in the metaphysics of time', Heather Dyke (2012) provides a thorough discussion of the desirable qualities a philosophical theory could have, listing their various merits and demerits. Among the candidates for these qualities are coherence with current science, ontological parsimony, elegance, coherence with common sense beliefs, and coherence with ordinary language. She concludes that coherence with common sense, coherence with ordinary language, and burden-of-proof strategies, do not in fact provide us with any means for settling metaphysical debates in the philosophy of time.[66] Dyke explains that the burden-of-proof strategy takes one theory to be the default position, and then works on the assumption that this theory is only to be abandoned in the face of overwhelming evidence. She says that this strategy is not consistent with an investigation that aims at truth.

[66] In a burden-of-proof strategy, one party in the debate has a higher bar to reach than the other. Dyke (2012), p.168.

Dyke then explains that both ordinary language and common sense are a result of evolutionary processes, which have given us adaptive representations of reality. Because of this, she argues that we should be cautious about appealing to common sense intuitions and ordinary language, as these things tell us more about how we conceptualize the world, rather than how the world is. For example, in the debate about tense, she argues that although our belief that there is a difference between past, present and future motivates adaptive behaviours, such beliefs do not have to correspond to reality. She therefore concludes that common sense intuitions about time and language are not good guides for establishing truth in the metaphysics of time, and that they are therefore not desirable qualities in metaphysical theories of time that aim at truth. Dyke would no doubt approve of Einstein's famous quote:

> Common sense is actually nothing more than a deposit of prejudices laid down in the mind prior to the age of eighteen.[67]

Dyke insists that coherence with our best current science is the quality that should be given the most consideration when aiming to answer questions about time. She says that the value of qualities such as parsimony and elegance can sometimes be rated above coherence with science, but this would only be when a theory was aiming at parsimony or elegance. When it comes to aiming at truth, coherence with science should be the quality that gets prioritized.

Not all philosophers agree with everything Dyke says. There are some philosophers who maintain that our beliefs about the world lead us to debates about the *language* with which we describe the world, which in turn can settle metaphysical debates about the world. Among these would be Mellor, Prior, and Goodman. I am on the side of those who agree with Dyke on this point; that is to say, at least to the extent that considerations about language should not trump considerations about compatibility with our best current physics.[68] However, this is not to deny that metaphysicians should want to be able to provide a logical representation of their theory, such that the ontological commitments of their theories are spelled out by formally compelling arguments.[69] Moreover, it is a legitimate question to ask whether it is a defect of a metaphysical theory if it cannot do this. In the debate between presentists and non-presentists, these concerns become important when it

[67] Attributed to Einstein by Lincoln Barnett (1948).
[68] This would include Markosian, Wuthrich, and James Ladyman.
[69] By using tense logic, for example.

comes to weighing up the advantages and disadvantages of various theories. For example, some eternalists claim that Priorian tense logic is problematic for A-theorists who have varying domains (i.e. presentists and growing blockers).[70] However, I completely agree with Dyke that coherence with our best current science is a key desideratum if a metaphysical theory is aiming at truthful description of how things are in the world.

Where I differ most from Dyke is in her views about common sense. I agree that common-sense intuitions can often be very misleading and can also be based on accepted prejudices. What I disagree about is completely writing-off coherence with common-sense intuitions as a desirable quality for a metaphysical theory, which aims at truth. Instead, I think a more nuanced approach is called for. This nuanced approach is also a more practical approach, as it allows for us to start with our common-sense opinions, even if we do not end up keeping all of them. More specifically, this process is practical in the sense that we need to be given very clear reasons if we are to be persuaded to let go of our deeply held common-sense opinions. We cannot just be told that they are wrong. To explain why I think this, let us consider what David Lewis writes on this subject.

According to Lewis, the role of metaphysics is to try and find ways of expanding our pre-existing opinions into an orderly system. Lewis explains this as follows:

> One comes to philosophy already endowed with a stock of opinions. It is not the business of philosophy either to undermine or to justify our pre-existing common-sense opinions, to any great extent, but only to try to discover ways of expanding them into an orderly system. … [Such an attempt at systematizing our opinions] succeeds to the extent that (1) it is systematic, and (2) it respects those of our pre-philosophical opinions to which we are firmly attached. Insofar as it does better than any alternative we have thought of, we give it credence. There is some give and take, but not too much: some of us sometimes change our minds on some given points of common opinion, if they conflict irremediably with a doctrine that commands our belief by its systematic beauty and its agreement with more important common doctrines. … And so it is throughout metaphysics.[71]

[70] See Sullivan (2016).
[71] Lewis (1973), p.87.

There are a number of points worth highlighting here. First, it is worth noting here that for Lewis, when it came to thinking about possibilities, the process of 'expanding common sense opinions into an orderly system' took him to conclusions that were not part of anyone's ordinary common sense views; that is to say, his modal realism. So Lewis himself is a clear example of a metaphysician who is prepared to let go of his previous common sense opinions if they appear to conflict with superior (or less negotiable) ones. It is also worth noting that the process of systematizing common sense opinions took him to conclusions that were made independently of physics, but which have also recently become of interest to physicists. What I mean is that just by doing metaphysics, Lewis came to hold a worldview that tells us that reality is radically different from the reality we think we inhabit. And what is interesting is that Lewis's modal realism has now become a point of discussion among theoretical physicists in their attempts to understand some of the consequences of the Everettian interpretation of quantum mechanics. For example, issues about counterparts, uniqueness, and personal identity.

I take Lewis' statement as a paradigm 'mission statement' for the methodology in this thesis. This is how I understand it. To ask whether presentism is a viable theory is not about trying to justify our common-sense ideas about time, or treat them as infallible. Rather, it is to ask: can our common-sense ideas about time be expanded into an orderly system? And if so, can that orderly system be rightfully called presentism? (We address the question of whether these ideas can be reconciled with physics below.) To see if it can, it needs to be systematic, which I take to mean that it must be internally consistent and coherent, and not contradictory. It also must, as Lewis says, respect those of our pre-philosophical opinions to which we are firmly attached. Here, alarm bells might start to ring of the 'burden-of-proof' variety, which Dyke rejected. However, I do not think this is what Lewis means.

Lewis writes a practical paragraph, explaining that we have certain pre-philosophical opinions about how things are, and that these are what we are aiming to systematize. He says that these opinons are important when it comes to distinguishing between versions of things that respect our opinions and those that do not. For example, Lewis says 'so long as it *is* my firm opinion, I must make a place for it when I do metaphysics'. Here I take Lewis to mean that metaphysics must respect our pre-philosophical opinions, because we will not really have time for doctrines that deny them. Hence it is a desideratum of a metaphysical theory that it

respects and properly considers pre-philosophical opinions, rather than simply dismissing them.

Lewis explains this further in *On the Plurality of Worlds*. He writes:

> Common sense has no absolute authority in philosophy. … It's just that theoretical conservatism is the only sensible policy for theorists of limited powers. … Part of this conservatism is a reluctance to accept theories that fly in the face of common sense. But it is a matter of judgement. Some common sense opinions are firmer than others, so the cost of denying common sense opinions differs from case to case. … It is not that a philosophical theory should agree with anything that the man on the street would insist on offhand. … The proper test, I suggest, is a simple maxim of honesty: never put forward a philosophical theory that you yourself cannot believe in your least philosophical and most commonsensical moments.[72]

(He adds, 'the incredulous stare is a gesture that is meant to say that modal realism fails this test.')

As far as not conflicting irremediably with a doctrine 'that commands our belief by its systematic beauty and its agreement with more important common doctrines', I take this to mean that to be credible, a particular metaphysical theory should not conflict with one that is *more credible* in some relevant way. However, part of being credible means not being incompatible with other accepted theories, such as scientific ones. It is here that compatibility with physics must always be taken into account.

So what we can conclude from all this is the following. When it comes to providing a credible metaphysical theory of time, that theory should at least be compatible with our best current physics. It should also, where possible, respect our common-sense opinions. Where common-sense opinions come into conflict with one another, we should employ a cost-benefit approach to decide which opinions deserve to be favoured over others. I have already indicated that what physics tells us about time is not a settled question, so these issues about common-sense opinions will become all the more important when it comes to seeing whether presentism does

[72] Lewis (1986a), pp.134-135.

better than alternative theories of time in expanding our common-sense opinions into an orderly system. Part of answering this question will involve seeing how presentism fares in face of the metaphysical objections it faces. As we shall see, many presentists find themselves pushed into adopting views that are not so commonsensical in order to try and meet these objections. These include accepting the existence of non-present times as abstract entities, or adopting some kind of Meinongian assumptions about existence predicates,[73] or evoking some sort of ersatz B-series.[74] As mentioned above, coherence with common sense is seen as one of presentism's major advantages. Without this, even if presentism can defend itself in the face of the objection from SR, it will be a less attractive option.

1.14 The manifest image and the scientific image

Some physicists (and some philosophers) are sceptical about the value of metaphysics in general; but they are particularly so when metaphysical theories concern issues that have to do with physics. Part of this scepticism involves the idea that metaphysics is motivated by a concern not to let the gap become too wide between *everyday experience* and the '*fundamental story about the world'* suggested by our best scientific theories. For example, the fundamental story might include quite exotic things, such as quantum information, strings, points on a configuration space, and so on. The sceptical complaint here is that metaphysics is motivated by a concern to avoid the philosophical problems that such gaps cause, and thus it involves a kind of backward-looking 'save the appearances' agenda. Science, on the other hand, is motivated by very different concerns; scientists are much more engaged in working out forward-looking schemes and theories, and the task of recovering ordinary things from these theories is not their primary concern.[75]

This type of complaint is shortsighted for a number of reasons. First of all, as we have already seen, when it comes to the gap between appearance and reality – or as Wilfrid Sellars calls it, the gap between 'the manifest image' and 'the scientific image' – 'reality' might not be so firmly established as scientists would like. And

[73] The idea that 'there is' does not equal 'there exists'; so *there are* some things that are not among the things that exist. As we shall see, some philosophers think such ideas are part of common sense. (e.g. Chisholm and Parsons.)

[74] An ersatz B-series is 'an ordering of abstract times/representations that represents a genuine B-series. Though standing in the equivalent of a temporal order, non-present times are at no temporal distance from the present so they can be quantified over and serve as truthmakers right now.' (See Crisp, 2007, p 98.)

[75] For an illustration of such a complaint, see postscript X in *Many Worlds?* (2014).

independently of how firmly the scientific image is established, in seeking to understand the implications (i.e. for our ordinary intuitions) of such 'gaps' or differences between the two images, philosophers are not motivated by wanting to avoid philosophical trouble. Rather philosophers are motivated to seek explanations, or what Sellars describes as wanting to know 'how things hang together.' Thus, according to Sellars, the aim of philosophers in general, and metaphysicians in particular, should be: 'Knowing one's way around with respect to the subject matters of all the special [scientific] disciplines and building bridges between them'.[76]

In Sellars' opinion, it is the scientific image that has the final say so. However, this does not mean that a complete scientific account of the world does not have to explain things such as our *experiences* of change and transience (if science suggested these were illusory, for example). Sellars took 'things' and 'hang together' to be understood in the broadest sense of those terms. 'Things', therefore, does not just mean physical things, such as concrete particulars or scientific phenomena. It also includes phenomenological things, such as our experience of living in a world where time passes and things change. And it seems correct to say that our experience of change and passage needs explaining, even if 'in reality' there is no change or passage of time. That is, we cannot deny that our experience is real (part of reality), even if change is not. As Chris Wuthrich explains, 'At the end of the day, a complete scientific account will have to explain our experiences as of change and as of transience.'[77]

1.15 Why does this thesis question matter?

Why does it matter whether presentism is defensible or not? Metaphysical theories aim to tell us something true about the world, and metaphysical theories of time aim to tell us truths about the nature of time and the temporal reality we live in. Presentism is typically thought of as the common-sense view of time, because the picture of reality that it gives us seems to correspond to many of our ordinary temporal experiences. As we have seen, these include our conscious experience of only existing at the present time, our experience of the present time being transient and future directed, our experience of effects never preceding their causes (assuming time is not circular). If presentism is false, then at very least we are going to need alternative explanations of some of our everyday experiences, and

[76] Sellars (1962)
[77] Wuthrich (2012), p. 448.

also whether these alternative explanations require us to give up some of our ordinary beliefs about time and what it is to exist at a time. This question should at least be important for anyone who is interested in whether temporal reality is the way it appears to be.

It may be that alternative theories of time can provide acceptable explanations of our common sense opinions about time and existing in time. But this needs to be shown. Some of the objections to presentism are also objections to the A-theory, so if these objections are successful, we need to be clear about to what extent (if any) a B-theoretic picture of reality preserves our common-sense opinions about time. Most people are not willing to accept that they have temporal parts, or that change is merely variation in a four-dimensional manifold, for example. And if other times and their contents are just as real as the present, we need to be clear about what the implications of this are for many of our other common-sense opinions. Such as, life and death, free will and so on. The point is that anyone interested in the truth about the world we live in should want to know whether time is real or illusory, and whether other times are just as real as the present, and what the implications of this might mean. For the final section of this chapter, I want to consider the reasons why presentism is thought to be the common sense view of time.

1.16 Time on the Clapham Omnibus

In the thesis abstract I wrote the following: although he does not know it, the man on the Clapham Omnibus is a presentist. Or more accurately, the man on the Clapham omnibus has ideas about time, which (at least) imply much of presentism. In this final section I want to support this claim, by spelling out which of our common sense ideas about time imply much of presentism. To do this, let us imagine that 'the man on the Clapham omnibus' really is an individual man, who is on the bus making his way to work on a Monday morning through the London traffic. What might his thoughts tell us about our intuitive and pre-theoretic ideas about time?

Perhaps he is tired and wishes it were a bank holiday so he could spend the day at home, or that it was already Friday instead of Monday. Or perhaps he anticipates a difficult meeting that afternoon, and wishes that it were already over. As the bus crawls along in unusually heavy traffic, he might wish that he could go back in time and start his journey fifteen minutes earlier, or that he had taken the tube instead. And as he checks his watch, he might think that by now his children will be at school

and some of his colleagues will already be arriving at work. As the bus comes to a standstill, he might wish that time would stand still too, so that he would not be late. Or he might deliberate about whether it would be quicker to get off and walk. And as the seconds seem to drag by, perhaps he turns his thoughts to the wedding he attended at the weekend, and reflects upon how much some of his old friends have changed since he last saw them, and how nice it would be to see them more often.

These typical thoughts tell us a number of things concerning our intuitive ideas about time. A useful way to bring out these ideas is to contrast our thinking about time from our thinking about space. The first contrast we shall consider is between temporal location and spatial location. Initially, there is an obvious similarity between our spatial location and our temporal location; namely, that once we are located at a particular time and a particular place, we no longer have the option to be anywhere or 'anywhen' else; that is to say, at a different place and a different time. Thus, if I am here now (in London at 8.50am on Monday), I cannot be there now (in Paris at 8.50am on Monday). So we can only be in one place at one time.

However, this is where the similarity ends. For we can choose whether to be in one place or another (at a given time), whereas there does not seem to be something analogous to that for time. For example, suppose that at 8.50am on Monday our man on the bus is stuck in traffic at Hyde Park Corner. Although he cannot now be anywhere else, he *could have been* somewhere else. For example, he could have been in his office in Trafalgar Square by now (had he chosen to travel by tube), or at home (were it a bank holiday), or at a meeting in Paris. However, he could not choose to be located at any time other than the present. This is because wherever else he might have been (at home, at work, or in Paris), he would still find himself located there 'now', or at the present. So this is one way in which being temporally present is different from being spatially present. We can choose our spatial location from a vast amount of options, but in the temporal case we only seem to have one option; namely, to be located in the present.

The second point about location is one we have already considered. This concerns the existence of other places. The man on the bus does not think that the place where he happens to be is the only place that exists, just because he is located there. For example, he does not think that Paris does not exist, just because he is in London. Such a view would not only be extremely egocentric, it would also have radical implications for other places and the people and things located at them;

namely, it would imply that they did not exist when they were not spatially present. This is clearly not part of our intuitive thinking about existence. Instead, when he thinks of other places throughout the world, he thinks of them - at that very moment - existing on a par with his current location. And likewise for the people located at those places; he thinks of them as existing now, at the same time as himself. So it is part of our intuitive thinking about space to think that people and places that are not spatially present exist on a par with people and places that are spatially present. Hence, there is nothing unique (or ontologically privileged) about the existence of our present spatial location.

Our intuitive thoughts about time, however, are very different. Although the man on the bus thinks that other places exist on a par with his present spatial location, he does not think the same about other times. For example, he would not be puzzled by the phrase 'kangaroos exist, but not here', but he would be puzzled by the phrase 'dodos exist, but not now'. This is because unlike spatially non-present entities, we intuitively think of merely past entities as things that *no longer exist*, and merely future entities as things that *do not exist yet*. (When the eternalist says 'Socrates *no longer exists'* and 'Martian outposts *do not exist yet'*, she understands such expressions in terms of domain restriction within a larger domain of *permanently existing objects*. In contrast, the man on the bus assigns no sense to expressions such as 'exists, but no longer exists', or 'exists, but does not yet exist'.) So, unlike being located 'here', which merely describes reality from our own perspective, the man on the bus thinks that being located 'now' describes how reality is itself, independently of our particular perspective. So, intuitively, we think that the distinction between the privileged present and other times reflects a genuine ontological distinction in the world. Hence the reason that the man on the bus has no choice about his temporal location is not because he lacks the means to travel to other times. Rather, it is because those other times do not exist as destinations to travel to in the first place.[78] So it is part of our common-sense view of time that the present exists in some important sense in which both the past and the future do not.

Nevertheless, he might think that there is another sense in which the past 'exists', and in which the future does not. He might think the past exists because he can remember it, or because the past is something that has already happened, and in

[78] For example, Markosian says that choosing to get into a time machine and leaving the present would amount to an act of suicide. (In discussion at *PERSP Workshop on the As and Bs in the Philosophy of Time,* Barcelona 19-20 September 2013.)

that sense is fixed. But even if he thinks that the past exists *in this sense*, he is unlikely to think that past things exist, or that past events are happening. For example, suppose that when the bus finally arrives at Trafalgar Square, he thinks about the Battle of Trafalgar. When he thinks of that battle, he thinks of it as something that *happened* in the past; he does not think that it *is happening* off the coast of Spain, in an earlier temporal location. Similarly, when he thinks of Admiral Nelson, he thinks of him as someone who *existed* in the past. He does not think that Nelson exists in the way that he himself exists, albeit in another temporal location; rather he thinks of Nelson as someone who ceased to exist over two centuries ago, and hence no longer has any actual (physical) temporal location. (Again, he might be happy to accept as true statements such as 'Queen Victoria and Queen Elizabeth II exist at different times', but he is unlikely to think that they exist in the same way, albeit at different temporal locations.) So although there is a respect in which he might think the past exists, there is also an important respect in which we intuitively think that the present (and/or its contents) exists, whereas both the future and the past (and/or their contents) do not. The difference between 'now' and 'then' does not seem to be about a perspective from his own temporal location, but rather reflects a difference in reality itself.

This difference between 'now' and 'then' does not just concern the existence of people who no longer exist (like Admiral Nelson), or the occurrence of events that are no longer happening (like the Battle of Trafalgar). It also concerns the existence of people who presently exist and the occurrence of events that are presently happening. In the case of people who presently exist, when the man on the bus thinks back to the wedding he attended at the weekend, he does not think that he (or a temporal part of him) is at the wedding. That is to say, he does not think that a 'past part' of him exists at a different temporal location (a 'last Saturday' location) and is celebrating along with 'past parts' of his friends and family. Rather, he thinks of himself, and his family and friends, as people who exist at, and only at, whichever time is present. So when Saturday was present, he existed at that temporal location and no-when else, and now that Monday is present, he exists then and no-when else. It is not part of our ordinary thoughts about what it is to exist at a time to think of ourselves as objects that persist by being 'spread out' over time. Rather, we think of ourselves as a 'complete' object that exists at, and only at, the present moment.

In contrast, it is more normal to think of an event as something that is spread out over time. Events are not normally thought of as things that *exist*; rather they are

things that *happen*; and most events have a number of different stages that happen over time. A football match, for example, has a first half, a second half, injury time and so on. While the football match is being played, there is a sense in which we can say that that event 'as a whole' is happening. But there is also another sense in which only a part of it is happening; the part that is happening now, which is why we say at half time that the first half is over and the second half is yet to be played. Most events are too big to fit into the present. The man on the bus might think of his life as an event which spreads out across time, and that it is an event that is happening now. But as the whole event that is his life as a whole is too big to fit into the present, there is only one part of that larger event that is happening now. Moreover, the man on the bus clearly thinks of himself as one and the same individual who exists at all of the various stages of his life. But as these stages are only happening when they are present, he exists when, and only when, they are present. His life is an event that has different stages spread out across time; he does not think of himself as an individual who is spread out across time. So at each stage of his life, he is wholly present when that stage is present, rather than a part of him being present when that stage is present.

The man on the bus has other intuitive ideas about the contrasts between time and space. These concern the direction of time, the order of time, and the pace at which time passes. In each case, it appears that we have a single option with time, and multiple options with space. For example, we can only move forwards in time, whereas we can move in any spatial direction. Time appears to flow at the same rate for everyone, whereas we can move through space at different rates and also remain at a single location for some time. And with time, one moment follows the next in a strict order, whereas in space we can travel from A to B by many different routes and return to the same location again and again. However, as these differences are independent of the presentism/eternalism debate, they do not support my claim that our intuitive ideas about time imply much of presentism. I shall therefore not elaborate these differences between space and time.

What all this shows is this. Although ordinary people may have ideas about time that are in some respects underdetermined (such as the idea that past entities might exist 'in some sense' which future entities do not), they nevertheless have ideas about time that largely concur with presentism. This is because the man on the Clapham omnibus typically thinks of space and time in very different ways. For example, unlike spatial locations, he thinks that for each moment that is present,

that moment or 'now' is unique, because it has never been present before, and will never be present again. Hence, his view of time is largely a Newtonian one, according to which there is a unique and privileged present moment, which divides the past from the future.[79] On this view, time ticks away uniformly for everyone everywhere, and as it does it carries us from a fixed past into an open future. I therefore conclude that presentism is the *pre-theoretic* common-sense view of time. If we follow Lewis in his explanation of what a metaphysical theory should do, it is these pre-theoretic common-sense intuitions about time that we are to try and systematize. That is to say, it is these common-sense opinions about time that we will aim to organize into an orderly system. Once we have done this, we will be in a position to see which of these common-sense opinions (if any) we will have to let go of in order to have a credible metaphysical theory of time. At that point, we will be in a position to clearly see whether presentism really is the common-sense view of time; that is to say, *at reflective equilibrium*.

[79] Although they have probably heard something about relativity theory, most non-philosophers typically do not think that what is 'now' from their own perspective, is just one of many equally valid alternative perspectives about what is 'now'.

Chapter Two. McTaggart's Paradox and the A-Theory and the B-Theory

2.1 Introduction

In the last chapter we briefly introduced the standard positions in the metaphysics of time (eternalism, semi-eternalism and presentism), and the A-theory of time and B-theory of time. In the next chapter we explain in more detail what the non-presentist metaphysical theories of time are, spelling out their motivations and ontological commitments. The purpose of this will be to gain a clearer understanding of what the dispute between presentism and its opponents is really about. Understanding what these non-presentist theories are committed to is important, as presentism can only be properly understood in terms of what it will not accept. However, in order to understand these different metaphysical theories of time, and the disputes between them, we first need to understand the way in which these theories are motivated by the distinction between the A-theory of time and the B-theory of time (hereafter the A-theory and the B-theory). And in order to properly understand the A-theory and the B-theory, we need to understand how these theories have developed as responses to McTaggart's argument for the unreality of time (known as McTaggart's paradox). Hence the purpose of this chapter is to examine McTaggart's paradox, and consider some A- and B-theoretic responses to that paradox.[1] We also explain the relationship between the A- and B-theory and the positions known as tense-realism and anti-realism about tense. This sets the background for the next chapter, where we focus on non-presentist metaphysical theories of time.[2] I shall now say something about the structure and content of this chapter.

Part one contains a discussion of McTaggart's argument for the unreality of time, and considers some of the metaphysical background to that argument. In this context, we also introduce McTaggart's C-series.[3] The C-series will be explained further when we briefly consider arguments for timelessness in Chapter 3. Part two explains how the A-theory and the B-theory have developed from McTaggart's

[1] In many respects, the examination of the A-theory and B-theory, as responses to the issues raised by McTaggart's paradox, continues throughout the thesis.
[2] This includes: theories of timelessness; B-theoretic eternalism, known as the block universe; A-theoretic versions of eternalism, such as the Moving Spotlight and Williamsonian presentism; and semi-eternalism, such as the Growing Block and the Shrinking Tree.
[3] According to McTaggart, the C-series is the non-temporal series of events, which belongs to the timeless reality in which we live.

original distinction between the A-series of time and the B-series of time; and in particular, how they have developed as attempts to avoid McTaggart's conclusion that time is unreal. Understanding McTaggart's paradox enables us to see how the distinction between the A-theory and the B-theory motivates some major fault lines in the metaphysics of time. These include debates about the nature of change, how to understand temporal passage, and the reality (or otherwise) of tense. As we shall see, the debate about tense is not merely seen as a semantic debate about the language with which we describe the world. Rather, it involves a metaphysical debate about whether the world is such that it can only be completely and accurately described using a tensed language. For example, whether temporal reality is *fundamentally* constituted by tensed facts (facts that are true at one time and false at another), or merely by tenseless facts (facts that are permanent and eternally true). We shall also see that the distinction between realism about tense and anti-realism about tense does not always map neatly onto the distinction between the A-theory and the B-theory. I shall now say something more about the debate about tense.

A-theorists claim that the world is such that there is a fundamental distinction between the past, the present and the future. According to A-theorists, this is because the present is objectively and 'metaphysically privileged' in some way that past and future times are not.[4] Moreover, A-theorists claim that because time is dynamic, objects and events are only present *temporally*. It follows from this, for the A-theorist, that to adequately express some of the ways in which things in the world change, we need to use tense. That is, we need to distinguish ways an object *is* (objectively) from ways it *was* or *will be*.[5] For example, the world is such that Elizabeth II *is* Queen, but she was not always Queen, and will not always be Queen. (As will be explained, this is standardly thought to commit A-theorists to using primitive tense operators, in order to express what *was* or *will be* the case.[6]) Thus A-theorists are realists about tense, as they claim that tense is a feature of the

[4] Being 'metaphysically privileged' does not necessarily mean being 'ontologically privileged'. Hence I shall use the term 'metaphysically privileged' to distinguish between two views. 1) The present is metaphysically privileged, but not ontologically privileged (i.e. it is *merely* metaphysically privileged). 2) The present is both metaphysically and ontologically privileged. As we shall see, different A-theorists have different accounts of what makes the present *metaphysically* privileged.

[5] As opposed to the B-theoretic idea that change is adequately captured by a *tenseless* description.

[6] This is because the A-theorist cannot give a complete account of how things *were* or *will be* different at other times in tenseless terms.

extra-linguistic world, and not merely a feature of language. That is to say, the representational function of tense is to pick out some objective feature of reality.

According to A-theorists, a tenseless, or B-theoretic description of reality, cannot account for 'genuine' change in the world, because it leaves out this dynamic component of reality. A-theorists often express this dynamism in the following way: the most accurate complete description of the world right now is true, but it has not always been true, and it will not always be true.[7] As we shall see, different A-theorists explain this dynamic aspect of reality in different ways; either in terms of some sort of tensed or 'A-property' change, or things coming into existence and going out of existence, or in terms of the unfixity of the future.[8] However, despite their differences, all A-theorists agree that tensed properties and tensed facts are not *merely* perspectival, or time-relational, and that change cannot be explained *merely* in terms of some kind of variation in the manifold or space-time block.

In contrast, the B-theorist denies that there is an objective distinction between the present and other times. For the B-theorist, space and time are both held to be parts of the manifold, which is typically understood as the four-dimensional space-time block described by Einstein and Minkowski.[9] On this view, all locations in the spacetime manifold exist on a par. This latter claim (that all times exist on a par) is something the eternalist A-theorist agrees with. However, what the eternalist A-theorist and B-theorist *disagree* about is the extent to which time is thought to be like space. For example, the B-theorist claims that objects in the manifold are extended in time, *in much the same way* as objects are normally held to be extended in space.[10] More specifically, the B-theorist holds that just as there is no objective 'here' or 'there' when it comes to spatial location, so too is there no objective 'now' or 'then' when it comes to temporal location. Hence the B-theorist denies that there is an objective or metaphysically privileged present viewpoint within the manifold.

---

[7] This view, known as propositional temporalism, is the view that the world is such that some propositions can change their truth-value, and hence that some truths are not eternally true.
[8] Or in the case of the 'shrinking tree' dynamism involves some sort of branch attrition.
[9] A manifold is a space, which may be curved, and have a complicated topology, but in local regions looks just like flat Euclidian space (i.e. three-dimensional space). The manifold described by Einstein and Minkowski merges the three spatial dimensions with the temporal dimension, giving us a four-dimensional spacetime. However, a manifold could also have more than four dimensions. For example, string theory suggests there are eleven dimensions.
[10] 'Objects' here means what Austin calls 'medium-sized dry goods', which exist at more than one time.

According to the B-theorist, objects (and events) located at *different* regions of the manifold are related by tenseless relations, such as being earlier- or later-than one another; and objects located at *the same* region of the manifold are related by the tenseless relation simultaneous-with. The key feature of these tenseless B-relations is that they are permanent. For example, it is *always* the case that Queen Victoria's reign is later-than Queen Anne's reign, and earlier-than that of Queen Elizabeth II. As tenseless B-relations are permanent relations, the B-theorist cannot appeal to their being either lost or gained in order to give an account of change. Instead, the B-theorist explains change in terms of variation within the manifold. For example, B-theorists standardly claim *either* that Elizabeth stands in not-Queen-at relation to t_1 and the Queen-at relation to t_2, *or* that Elizabeth has a temporal part that has the property *not-Queen* at t_1 and a different temporal part that has the property *is Queen* at t_2.[11] On either account, the fundamental temporal characteristics an object has are the characteristics it always has.[12] Thus for the B-theorist, change does not involve distinguishing how an object *is* (simpliciter) from how it *was* or *will be*; rather it involves distinguishing how an object is (simpliciter) with respect to different parts of the manifold. As all change is ultimately explained in terms of some sort of variation, the B-theorist claims that an adequate account of change, and the passage of time, can be given in purely tenseless terms.

The tenseless picture of reality the B-theorist gives us is one in which locations in the spacetime manifold are like positions on a map; this tenseless 'map' being both complete and unchanging. This is because it is standardly assumed that the B-series provides a complete linear ordering of events; and hence, for all events, it is fixed whether one is earlier-than, later-than, or at the same time as, every other event.[13] The B-theorist therefore claims that all the temporal facts are available to be grasped from a completely impartial or 'temporally neutral' viewpoint. On this view, any temporal facts that involve ascribing tensed properties to events or objects from within the time series, merely describe the subjective viewpoint of an observer within the time series, but they do not describe reality itself. Hence according to B-theorists, all tensed statements have tenseless truth-conditions.

---

[11] Advocates of the temporal parts view claim that this provides an adequate account of change, as it allows that an object can have different *intrinsic* properties at different times. A-theorists deny this is genuine change, since different temporal parts have these properties *permanently*.

[12] Mellor is a B-theorist who tries to combine B-theoretic variation with endurantism. We consider this in Chapter 3.

[13] However, note that tenselessness is independent of linearity. Thus, one could hold that reality is tenseless and that time is circular. In this case, the earlier-than relation would not provide a strict ordering of events.

When it comes to explaining how tense in ordinary language can be explained in terms of a tenseless reality, B-theorists have various strategies. Tensed language involves distinguishing between past, present and future, and the present is typically the reference point from which tensed statements are evaluated.[14] What the B-theorist needs to show is that our use of tense in language does not mean that the extra-linguistic world is tensed in some important way. Or to put it another way, the B-theorist needs to show that tense is *merely* a feature of language. As will be explained, some B-theorists have attempted to eliminate all tense from language, by providing tenseless translations of the tensed sentences in ordinary language. Other B-theorists accept that tense cannot be eliminated from ordinary language and thought. These B-theorists either deny the existence of tensed facts, or hold that tensed facts are merely perspectival, and are thus ultimately reduced to and made true by tenseless truth-conditions, or tenseless truthmakers. However, what unites all B-theorists is the claim that because tenseless truths are the only truths there (ultimately) are, the ultimate true description of reality is not subject to change.

By the end of this chapter we should have a clearer understanding of McTaggart's argument for the unreality for time, and how the A-theory and the B-theory have developed as responses to McTaggart's paradox, and how realism and anti-realism about tense relate to the A-theory and the B-theory. These issues will come into sharper focus in Chapter 3, where we examine the different metaphysical theories of time, and consider the various alliances between them and the A-theory and the B-theory. As we shall see, the semantic debate about tense does not map neatly onto the ontological debate between the various metaphysical theories of time. Let us now consider McTaggart's argument.

Part 1. McTaggart's Paradox and the A-series and the B-series

J. M. E. McTaggart's 1908 argument 'The Unreality of Time' set the agenda for many of the contemporary debates in the metaphysics of time.[15] The radical conclusion of McTaggart's argument is that nothing can exist in time. Although

[14] More accurately, statements involving *absolute* tense (e.g. was, is, will be) involve a direct reference to the present. Statements involving *relative* tense (e.g. 'she had done x'), refer to times other than the present. However they involve an indirect reference to the present, since something that is past in the past, is nevertheless still past in relation to the present.

[15] Some contemporary debates in the metaphysics of time are not directly connected to McTaggart's argument. These include issues informed by physics, such as the topology of time, the direction of time, and the relationism-substantivalism debate.

nearly all philosophers reject this conclusion, establishing what is wrong with his argument continues to be a matter of dispute, between both A-theorists and B-theorists, and between presentists and non-presentists. McTaggart's argument is rather like a philosophical Pandora's box, releasing a host of difficult issues that continue to plague the philosophy of time. These issues include questions about the nature and reality of time, change, tense, temporal becoming, and temporal properties and relations. McTaggart also reformulated and extended his original 1908 argument, and this was published posthumously in *The Nature Of Existence* (volume 2) in 1927. It is important to note that McTaggart is an idealist philosopher, who makes a significant distinction between appearance and reality. Hence, to properly understand his arguments about time, these need to be understood within the context of this distinction. We can see the relevance of this distinction between appearance and reality by briefly considering the content and overall structure of *The Nature of Existence* (hereafter *NE*). This provides some valuable (and often overlooked) background to McTaggart's argument for the unreality of time.

2.2 The background metaphysics

In the first volume of *NE*, McTaggart presents what he takes to be a priori arguments about ontology. He takes these arguments to establish the nature of what it is to be real and to exist in *absolute reality* (reality as it is in itself), as opposed to *apparent reality* (how things appear). McTaggart's arguments are just summarized here. McTaggart argues that nothing can be real unless it exists; hence existence and reality coincide.[16] He also argues that everything in existence (and hence in reality) is constituted by substances that possess properties and hold relations.[17] According to McTaggart there are multiple substances, each of which can be differentiated into proper parts that are also substances. A number of things follow from this. First, there are no real but non-existent entities, such as abstract propositions or abstract facts.[18] Instead, McTaggart thinks that facts are substances, which exist and possess properties or stand in relations to other existing things or

[16] McTaggart (1927) vol. 2, chapter 2, section 6.
[17] Ibid., chapter 4-6. For McTaggart, a substance is anything that is able to have any kind of property and stand in any kind of relation. A substance need not be a material entity.
[18] McTaggart is reluctant to accept the existence of propositions. In his argument for the unreality of time, he postulates the existence of tensed propositions, but this is only for the sake of conditional arguments. He does not think such propositions exist. McTaggart thinks that propositional content only exists as qualitative states of mind, or 'beliefs', which are states of a substance. He describes such beliefs as 'psychical facts'.

substances.[19] Hence for McTaggart, a fact is an *existing state of affairs,* as opposed to *a truth about an existing state of affairs*.[20] Secondly, there can be no non-actual things. For example, if things *were* real but non-existent, those things would be non-actual; but for McTaggart, as existence and reality coincide, everything is actual.[21] Thirdly, as the only way to be real is to exist, reality must exist in its entirety. Hence absolute reality exists as a perfect and complete whole.[22]

In the second volume of *NE*, McTaggart considers the consequences of this ontology for *empirical* matters, such as time. Here, he takes these empirical considerations to be established by a phenomenological analysis, rather than an ontological or a priori one. His arguments about time therefore begin with the empirical observation that everything *appears* to be in time. However, what McTaggart wants to know is whether these empirical considerations about the nature of time (how reality appears in present experience), are compatible with the nature of existence of absolute reality, which he takes to be established a priori.

Given McTaggart's ideas about ontology, there are a number of things that he is presupposing in his arguments about time. For example, when McTaggart talks about time, he sometimes characterises this in terms of relations holding between various times. However, given McTaggart's ontology, if there are such things as relations holding between times, this can only be because there are *substances* located at various times, which stand in those temporal relations.[23] Similarly, if there are temporal properties, this is only because there are *substances* located at various times, which possess these properties. McTaggart calls these temporally located substances 'events'. Thus, according to McTaggart, *if* time is real, it is dependent on the temporal relations between existing substances (events) located at various times, and the temporal properties possessed by those events.[24] Moreover, for McTaggart, a substance possessing a property, or standing in certain relations, is what constitutes a fact. Thus temporal facts can only exist if the different events, which possess temporal properties or stand in temporal relations, exist. In his arguments about time, McTaggart therefore assumes eternalism (or

[19] Ibid., Chapter 2. For McTaggart, facts do not belong to a distinct category of entities from substances, qualities and relations.
[20] See Ingthorsson (2016), p. 16.
[21] McTaggart says, 'there is nothing which makes it necessary for us to accept the reality of propositions, or of non-existent characteristics, facts, or possibilities.' (1927) vol. 1, §36.
[22] Ingthorsson (Ibid.), p.69.
[23] For McTaggart, a static set of simultaneous events would not constitute a time series.
[24] See Ingthorsson (1999), p.4.

temporal parity) from the outset; the view that all times, events, and facts exist on a par.[25] This is because eternalism is the only ontological account that could be consistent with McTaggart's account of absolute reality, which exists as a complete whole. Keeping this assumption of temporal party in mind is key to understanding McTaggart's paradox.

As we shall see below, McTaggart's empirical considerations about the nature of time turn out to be incompatible with his ontological views about the nature of existence. In line with his idealism, he therefore concludes that reality is both timeless and immaterial, or 'spiritual'. McTaggart also denies the possibility of change, and that of any genuine temporal distinctions. He therefore claims that the appearances of such things are misperceptions. McTaggart's argument for the unreality of time therefore raises issues about the nature of time, change and tense, which continue in contemporary debates between A-theorists and B-theorists. Let us now examine his argument for the unreality of time in detail.

2.3 McTaggart's argument for the unreality of time

McTaggart distinguished between two ways of characterizing events as they are ordered in time.[26] He called these the A-series and the B-series. Events in the A-series are ordered in respect of what he calls 'A-characteristics.' These include characteristics such as being past, present, future, yesterday, two weeks ago, next year, and so on. A-characteristics are typically referred to as A-properties.[27] A key feature of the A-series is that A-characteristics can only be ascribed to events in relation to some time, which is specified as the present.[28] For example, 'yesterday' can only be ascribed from the perspective of the present day, 'next week' from the perspective of the present week, and 'last century' from the perspective of the present century. The notion of the present thus plays a key role in the A-series, as it

[25] See again footnote 19 on the existence of facts.
[26] McTaggart also distinguished a non-temporal series, the C-series. As is explained below, this is a timeless series of ordered perceptions, which is *misperceived* as a temporal series.
[27] Not all A-theorists accept that there are such things as tensed or 'A-properties.' As will be explained, in Prior's tense logic, significant tenses are represented by sentential operators, such as 'it was the case that' & 'it will be the case that'. Prior uses these tense operators to replace A-predicates in his talk about non-present entities. Ersatzer presentists also deny the existence of tensed properties, claiming instead that there are ersatz B-times.
[28] Ascriptions of A-characteristics always involve reference to the present. For example, even an ascription such as 'the future of the future', which does not involve an *explicit* reference to the present, will nevertheless involve an implicit reference to the present. 'The future of the future' refers to the future of a time *t*, but time *t* can only be held to be future from the viewpoint of the present.

provides a privileged standpoint from within the time series, in relation to which all other A-positions are orientated. This perspectival nature of the A-series is reflected in the fact that all A-characteristics involve tensed language.[29] For example, events in the A-series can be described with tensed verbs, such as 'was' or 'will be', temporal indexicals or pronouns, such as 'now', or 'tomorrow', and predicates such as 'past,' 'present,' and 'future.'

A second key feature of the A-series is that the positions of events in the series are not permanent. Instead, events continuously change their A-positions as they move along the time line; thus McTaggart says, 'any event that is now present, was future, and will be past.'[30] As will be explained shortly, McTaggart claims that for an event to undergo a change just *is* for it to change its position in the A-series. This process of A-series change, in which events shift from being future to present, and from being present to being more and more past, is known as temporal becoming.[31] Within this process of temporal becoming, what is present is also transient and continually changing. Thus the present provides a *dynamic* perspective from which all A-characteristics are ascribed. It follows from the fact that events in the A-series do not have their positions permanently, that truths expressed by sentences using A-characteristics can change in truth-value. For example, for McTaggart, a proposition expressed by a sentence using a present tense verb, such as 'it is raining' will be true when uttered on a rainy day, and false when uttered on a dry day.[32]

In contrast, events in the B-series are ordered in respect of what McTaggart calls 'B-characteristics'. B-characteristics are two-place relations, such as is earlier-than, is later-than, is simultaneous-with, is two days apart, and so on. These are also referred to as 'B-relations'. It is assumed that the B-series gives a complete linear ordering; hence for all events, it is fixed whether one is earlier-than, later-than, or at the same time as, any other event. The key feature of the B-series, therefore, is that events have their B-relations permanently. Because B-relations are not ascribed in relation to any privileged present moment within the series, B-relations hold between events irrespective of any A-characteristics that could be ascribed to

[29] Language framed in terms of past, present, and future tenses. See Geach (1979), p. 96.
[30] McTaggart (1927) *NE*, p.10
[31] Temporal becoming is sometimes called 'the passage of time', or the view that time 'flows'.
[32] More accurately, McTaggart's argument is conditional. He claims that *if* there is change, *then* there must be propositions that change their truth-value. As he goes on to reject change, he does not actually have to endorse the view that there are such things as propositions.

them at different times. For example, consider an event e_1 (me-writing-these-words), which stands in an earlier-than relation to event e_2 (you-reading-these-words). As it is true that e_1 is earlier-than e_2, this relation holds regardless of whether e_1 is present and e_2 is future, or e_1 is past and e_2 is present, or both e_1 and e_2 are past. Hence B-relations between events do not change. A consequence of this is that facts about B-relations ('B-facts') are either eternally true or eternally false. Thus, if it is true that e_1 is earlier-than e_2, it will always be true. B-relations are called tenseless relations, because they do not involve a relation to any point taken to be the privileged present.

McTaggart argues that both the A-series and the B-series are essential to time. For example, he says that time must be distinguished *both* as past, present, and future, and as earlier and later. However, he then says that the A-series is more fundamental, because without the A-series, and its distinctions between past, present, and future, the B-series is not even a time series. McTaggart's argument for this is that time must also involve change, and thus the B-series *without* the A-series could only constitute a temporal series *if* change were possible without the A-series. However, according to McTaggart this is impossible, as B-relations are permanent and hence can never change. He therefore says, 'without the A-series, there would be no change, and consequently the B-series by itself is not sufficient for time, since time involves change.'[33]

McTaggart clearly thinks that on its own the B-series is not sufficient for time, as the permanent relations of the B-series do not capture the essence of change. However, McTaggart also says that it is essential to time that it is distinguished as earlier and later. So this raises the question of why the B-series is not equally as fundamental as the A-series. The answer to this question lies in the fact that the B-relations of earlier-than and later-than, which McTaggart holds *are* essential to time, can be generated from another source; namely, from the combination of the C-series and the A-series. McTaggart's C-series is a non-temporal series of permanent relations, which, being timeless, have no temporal direction. That is to say, no C-series term is earlier or later than another. However, McTaggart says that when the C-series is *combined* with the A-series, this also generates a B-series. For example, when the timeless terms of the C-series are ordered by the A-positions, past, present and future, they form a B-series, because a *past* event will

[33] McTaggart (1908), p. 27.

also be *earlier-than* a future event. We shall discuss the C-series in Chapter 3, when we consider theories of timelessness. The important point here is that for McTaggart, the B-series is not ultimate in the way that the A-series is, as the B-series can be generated from another source (the combination of the A-series and the C-series). The A-series, in contrast, cannot be generated from any other source.

Having argued that the A-series is necessary for change and time, McTaggart's next step is to argue that the A-series leads to a contradiction (explained below). According to McTaggart, this contradiction renders the A-series incoherent. He therefore argues that without the A-series there can be no change and no time; and hence concludes that time is unreal. McTaggart's argument can be outlined as follows:

1. There is no time if there is no change.
2. There is no change unless A-characteristics actually occur in the world.
3. To assume the actual occurrence of A-characteristics involves a contradiction.

C. Therefore, there is no change and no time.

McTaggart's conclusion is generally rejected. However, as his argument is formally valid, those who reject his conclusion have to identify a fault with one of his premises.[34] McTaggart does not really argue for premise (1), and most philosophers leave this premise unchallenged.[35] So as premise (1) is not disputed, to defeat his argument either premise (2) or premise (3) must be shown to be false. B-theorists typically dispute premise (2), the claim that the A-series is necessary for change. And A-theorists typically dispute premise (3), the claim that the A-series is contradictory.

Before we look at these two premises, it is important to notice the type of change that McTaggart has in mind when he says 'if anything changes, then all other things change with it' (*NE* 309). According to Peter Geach, what McTaggart means here

[34] Assuming (uncontentiously) that contradictions are never true.

[35] For an interesting argument that time can exist without change, see Shoemaker (1969). McTaggart, however, would deny that what Shoemaker calls a 'temporal freeze' equals no change. This is because McTaggart would say that even in a 'temporal freeze' there are still changes going on, because the passage of time implies a change in what time is present.

can be understood in terms of a 'Cambridge change'.[36] A Cambridge change is the type of change that an object *O* can undergo without undergoing an actual change itself. For example, if I stay the same height, but my daughter grows taller than me, I have undergone a 'Cambridge change'. So although I have not changed in height, I have changed in relation to my daughter's height; and thus what was true of me at a past time (that I am the tallest female in the family), is no longer true. Thus a Cambridge change can be distinguished from an actual change. So when McTaggart claims that there is no time without change, he means the type of relational change an event *e* undergoes in relation to something else, without implying an intrinsic change in event *e* itself.[37] With this understanding of change in hand, let us look at McTaggart's argument for premise (2).[38]

McTaggart gives two arguments to support premise (2). The first is that there is no change unless events change;[39] and McTaggart says that the only way that events can change is by changing their position in the A-series. He considers the example of the death of Queen Anne. He says that the only way this event can change any of its characteristics is by changing its A-characteristics; it cannot, for example, change its date or its causes, as these are fixed and permanent. Thus the only way it can change is by changing its position in the A-series. That is to say, it changes by at one time being future, then becoming present, and then becoming past. There are problems associated with treating events as the subject of change, as opposed to individuals or objects.[40] However, for the purposes of stating McTaggart's

---

[36] Geach (1979), p. 90. Geach says 'An object *O* is said to 'change' in this [Cambridge] sense if and only if there are two propositions about *O*, differing only in that one mentions an earlier time and the other a later time, and one is true and the other is false.'

[37] For example, McTaggart says 'The fall of a sand-castle on the English coast changes the nature of the Great Pyramid.' (1927), vol 2, §309.

[38] Two clarificatory notes: (1) Although a Cambridge change can be distinguished from an actual change, a Cambridge change is never independent of an actual change. (For example, an actual change in my daughter is what brings about a Cambridge change in me.) However, given his metaphysical assumptions about Absolute Reality, McTaggart has already denied the possibility of actual change. So what he is considering here is the *appearance* of Cambridge change (what Geach calls '*merely* Cambridge change'). McTaggart will later explain that what we perceive as an actual change is a *misperception* of the ordered parts of the non-temporal C-series. (2) While A-theorists typically describe A-characteristics as monadic properties, this is not how McTaggart describes them. For McTaggart, A-characteristics are relations, and A-series change is relational. We return to this point below.

[39] McTaggart says, 'the contents of any position in time form an event'.

[40] Russell and Prior claim that *objects or things* are the subjects of change, not events. (For Prior, talk of events 'existing' is just a confusion.) Geach also says that basing an account of change on *events* changing makes trouble for McTaggart. He says this not only entails that concrete things have events as phases in their histories; it also sets the argument off on an infinite regress of higher-order phases of events, in which each history would have a history, whose phases would

argument, we can ignore these.[41] For now, let us accept that according to McTaggart for any change to occur, an event must change its position in the A-series.

McTaggart's second argument for premise (2) is that there can be no change unless there are (complete) propositions that vary in truth-value; and the only propositions that can vary in truth-value are ones involving A-characteristics.[42] (McTaggart does not mean that change consists in propositions varying in truth-value; rather he means that propositions vary in truth-values as a *consequence* of change; namely, things possessing different properties at different times.) To understand why this claim is controversial, we need to make a short digression to say something about propositions. We also need to bear in mind that McTaggart does not want to accept the existence of propositions, so this whole argument must be taken as a *conditional argument* for change.

Propositions are entities that are held to play a number of distinct roles. For example, propositions can be held to be the primary bearers of truth-value, the semantic values of sentences relative to contexts, the objects of belief and other 'propositional attitudes' (i.e. what is believed, doubted, etc), and the contents of speech acts, the referents of *that*-clauses, the meanings of sentences, or sets of possible worlds. Here I treat propositions as the primary bearers of truth-value; and discuss them in terms of what is expressed by sentences in (or relative to) a context. Moreover, as the relevant context here only concerns time-information, I shall ignore issues about other parameters typically required for truth-evaluation, such as world-information.[43] So, for the purposes of this discussion I shall only focus on the issue of whether propositions can have different truth-values relative to different times.

Let us consider the proposition expressed by the sentence 'the poker is hot'. This sentence lacks an explicit time-determination, such as a specific date or time, which is represented schematically by the adverbial expression 'at *t*'. Thus before we can evaluate whether the proposition this sentence expresses is true or false, we need

---

be the event's futurity, presentness and pastness, thus leading to an infinity of times. (Geach, 1979, p.93).

[41] Moreover, many philosophers consider it *inessential* to McTaggart's argument that it be formulated in terms of events; for example, Dummett, Fine, and most presentists.

[42] Propositions vary in truth-values as a *consequence* of a difference in the properties possessed by a particular object (or objects) at different times.

[43] Truth-evaluation typically requires reference to exactly one world point and one time point. However, I shall assume a world-invariant context here.

some further information; namely, we need information that specifies *when* the poker is said to be hot. In the case of sentences lacking an explicit time-determination this time-information is provided by the context of utterance. However, what becomes controversial in such cases is *how* this time-information engages with the proposition in question. For example, must the time-information be included *in the proposition*, or can there be 'time-neutral' or temporal propositions, which only have their truth-values relative to times?

According to the view known as semantic eternalism, the time-information necessary to evaluate the proposition must be *specified in the proposition* itself.[44] Semantic eternalists thus follow Frege in holding that there must be nothing left undetermined in a proposition that is required to determine its truth-value.[45] For example, consider again the proposition expressed by the sentence 'the poker is hot.' According to semantic eternalists, if this sentence expresses a genuine proposition (that is to say, one that is truth-evaluable), the time-information needed to evaluate it must be fully specified in the proposition itself. In this case, the context of utterance plays the role of fully determining which unique proposition a sentence expresses.

To see how this works, let us suppose that the poker is hot at noon on Monday 14th April 2014 GMT, and cold at noon on Wednesday 16th April 2014 GMT. Let us also suppose that at noon on Monday John utters the sentence 'the poker is hot', and at noon on Wednesday Jane utters the sentence 'the poker is hot', thus giving us two distinct contexts of utterance. If the necessary time-information is included *in the proposition*, then given these two contexts of utterance, the *same* sentence ('the poker is hot') uttered by John and Jane will express two *distinct* propositions. To illustrate this, let us assume that propositions are Russellian structures that contain their constituents. Then the proposition expressed by John's sentence will be:

- <The poker, being hot, noon Monday 14th April 2014 GMT>

And the proposition expressed by Jane's sentence will be:

[44] Semantic eternalism is not to be confused with the *metaphysical* theory of time called eternalism. Only some eternalists endorse semantic eternalism; i.e. most B-theorists.
[45] Otherwise, what is expressed by the sentence will be incomplete, and hence, according to Frege, will not be a proposition at all, because it will not be truth-evaluable.

- <The poker, being hot, noon Wednesday 16th April 2014 GMT>.

Here we can see that when the necessary time-information is specified *in* the proposition, the same sentence ('the poker is hot'), uttered in different contexts, gives us *distinct propositions*. We can also see that when the necessary time-information is included in the proposition, the truth-value of that proposition is *temporally invariant*. For example, if the poker is hot at noon on Monday 14th April 2014 GMT, John's sentence expresses a proposition that is eternally true; and if the poker is cold at noon on Wednesday 16th April 2014 GMT, Jane's sentence expresses a proposition that is eternally false. As these propositions are fully specified, neither of them can vary in truth-value; hence their truth-value is absolute. Thus, for semantic eternalists all genuine propositions must be fully specified, and hence are either eternally true or eternally false.

The opposite view (the view that McTaggart says is necessary as a consequence of change) is known as propositional temporalism. According to this view, the necessary time-information does *not* have to be included in the proposition for it to be truth-evaluable. Instead, propositions lacking fully specific time-determinations can be truth-evaluable relative to a context (that is, relative to a time). Moreover, as the time-information is not included in the proposition itself, the *same* proposition can be true or false relative to different contexts (that is, relative to different times). Hence such propositions are time-neutral. Consider the sentence 'the poker is hot' as uttered by John and Jane above. Here, the copula 'is' is taken to be the present tense form of the verb 'to be', and thus indicates the A-property of being present. Thus John's sentence and Jane's sentence both express the same time–neutral proposition; namely,

- <The poker, being hot, the property of being present>

As stated above, for a proposition to be truth-evaluable, it must be completed by the necessary time information.[46]

[46] On this view, given McTaggart's assumption of eternalism, truth simpliciter and truth-at-a-time come apart. Only omnitemporal truths (truths that are true at all times), and certain transtemporal truths (truths that hold of the entire time series collectively), would be true simpliciter. In contrast, a presentist like Prior can hold that propositions can vary in truth-value, and also hold that *what is the case, is what is presently the case*. Thus for Prior, truth simpliciter and truth-at-a-time coincide.

However, in time-neutral propositions, as the time-information is not included in the proposition itself, the context of utterance provides the necessary time parameters. Thus to evaluate the proposition, we need to look to each particular context of utterance. As John utters his sentence at noon on Monday, the proposition is true at that time, and as Jane utters her sentence at noon on Wednesday, the proposition is false at that time. In both cases, it is the *same* proposition being evaluated. This is because the A-characteristic 'being present' does not tie the proposition to only one specific time or event. Rather, the property of being present is a transient A-property, which different events have at different times as they move along the A-series. Similarly, when propositions involve other A-characteristics, such as those expressed by 'tomorrow' or 'was', they can vary in truth-value depending on the context of utterance. Thus, for a proposition involving A-characteristics, the truth or falsity of that proposition will only be relative to the time at which it was expressed.[47] Thus, propositions expressed by sentences such as 'school starts tomorrow' and 'it was sunny', can be true or false relative to different times.

According to McTaggart, there must be temporally neutral propositions (ones that can vary in truth-value) if there is to be change. His reason is that propositions with absolute truth-values, which are fixed according to specific time determinations (including permanent B-relations) cannot account for change. For example, if it is eternally true that the poker is hot at t_1 and cold at t_2, this is not sufficient to show that the poker has undergone a change. This is because the property it has at t_1 it always has, and the property it has at t_2 it always has. So these eternally true propositions merely describe an *unchanging* relationship between these two events. McTaggart is explicitly rejecting the Russellian account of change. He says that according to Russell, there is a change if the proposition ' "at the time *T* my poker is hot" is true, and the proposition "at time *T* my poker is hot" is false.'[48] This account of 'change' does not involve any A-characteristics, as it involves specific time-determinations ('at time *T*'). However, for McTaggart this does not constitute a change. Rather, what Russell describes is merely a case of variation, in which the two propositions are always true and false. Thus, according to McTaggart, if change is real there must be A-propositions.

[47] This is why Frege denied that there could be an incomplete proposition. For Frege propositions are either complete or else what is expressed by a sentence is not proposition at all.
[48] McTaggart (1927) vol. 2, p. 313.

McTaggart also has a third argument that supports his claim that the A-series is indispensible for time. This argument appears in a footnote in a separate chapter 'Further considerations about time'.[49] Here McTaggart argues that the B-series must be defined in terms of the A-series. For example, he considers whether the future could be defined as 'what is later than the present', and the past as 'what is earlier than the present'; in which case the A-series would be defined in terms of the B-series. However, he says this would be a mistake. His reason is similar to the reason given above to explain why the A-series is essential in a way the B-series is not; namely, that without the A-series, the B-series is not a time series. McTaggart says that without the changing terms 'past', 'present', and 'future', we would not have a time series. Hence the terms 'earlier' and 'later' are only conceived of *after* the terms of the A-series are conceived of, and not the other way round. Thus, as the terms 'future' and 'past' could never be derived from the B-series, McTaggart concludes that the A-series is indispensible for time.

Having proved to his own satisfaction that the B-series depends on the A-series, and hence that the A-series is essential for time, McTaggart's argument changes direction. His third premise, which is designed to prove that the A-series cannot exist, is that to assume the actual occurrence of A-characteristics involves a contradiction. Here McTaggart gives two arguments, which are both designed to show that A-characteristics are delusory, although only the second directly supports his third premise. He begins by considering whether the terms of the A-series are relations or qualities (monadic properties). Although McTaggart thinks they are relations, he says his reasons for rejecting the reality of the A-series will be unaffected even if they are qualities.

His first argument for premise (3) is that if anything is 'to be righty called past, present or future, it must be because it is a relation to something else … outside the time series.'[50] According to McTaggart, B-relations, which hold exclusively *between* members of the time-series, can never change. (This is because if Y is earlier-than Z, Y is always earlier-than Z.) So, positions in the A-series must depend on relations to some entity X *outside* the A-series. Although McTaggart cannot think what such an entity could be, he says it must be found if the A-series is to be real. However, he leaves this issue unresolved and turns to the second argument, where he sees a more immediate difficulty for the reality of the A-series.

---

[49] Ibid., p. 271.
[50] McTaggart (1927) vol. 2. §327.

McTaggart's second argument for premise (3) is that postulating the reality of A-characteristics leads to a contradiction. McTaggart starts by saying that past, present, and future are incompatible characteristics; and thus it is essential to change, and therefore time, that an event be one or the other, but no more than one. (It is essential to change because 'the only change we get is from future to present, and from present to past.') Thus he writes:

> A series is an A-series when each term has, to some entity X outside the time-series, one, and only one, of three indefinable relations, pastness, presentness, and futurity, which are such that all the terms which have the relation of presentness to X fall between all the terms that have the relations of pastness to X, on the one hand, and all the terms that have the relation of futurity to X, on the other hand.[51]

So, event *M* must either be past, present, or future in relation to some X outside the time series. And for change to occur, *M* must either lose the A-characteristic is-future (in relation to X), and gain the A-characteristic is-present (in relation to X), or lose the A-characteristic is-present, and gain the A-characteristic is-past (in relation to X). However, McTaggart says,

> But every event has them all. If M is past, it has been present and future. If it is future, it will be present and past. If it is present, it has been future and will be past. Thus all three characteristics belong to each event. How is this consistent with their being incompatible?[52]

So for McTaggart, the incompatibly is this: recognizing that change requires that events in the A-series are ordered in terms of *distinct* positions (being *either* past, present, or future), and the incompatibility of those A-characteristics themselves. For example, suppose that event *M* is the coronation of Queen Victoria. From our viewpoint, *M* is past, and hence it is true to say 'Victoria *has been* crowned'. But the pastness of this event is not constituted by *M* standing in the earlier-than relation to other times (as that relation never changes).[53] Rather, its pastness must be constituted by *M* standing in the past relation to some X outside time. However,

---

[51] Ibid.
[52] See also (Ibid) §329.
[53] Remember that McTaggart assumes eternalism, but rejects the B-theoretic account of change.

McTaggart's point is that *M* cannot stand in *that* relation in the past, because in the past, *M* is present and not past. So *M*'s possession of pastness (standing in the past relation to X) must be an event located in the present and future. In which case, a single event *M* has all three A-characteristics (being past, being present, and being future). So McTaggart's claim is that while these different temporal viewpoints necessarily imply one another, they are also incompatible with one another.[54] Thus A-characteristics themselves are contradictory.

The immediate response, or 'natural rejection', is to say that events only have these characteristics *successively*. For example, for any present event, it *is* present, *was* future and *will be* past. As we only get the contradiction if we describe these events using the auxiliary with the present tense, ('is present', 'is past', 'is future'), it seems that McTaggart is just misdescribing the facts. There is no incompatibility in holding that an event that *is* past, *was* present, and at an earlier time *was* future, or that an event that *is* future, *will be* present and at a later time *will be* past. Thus, as no event has these three characteristics *simultaneously*, there is no incompatibility, and hence no contradiction.

McTaggart anticipates this response, and states it himself as follows:

> It may seem that this can be easily explained. … It is never true, the answer will run, that M is past, present, and future. It *is* present, *will be* past and *was* future. Or it *is* past, *has been* future and present, or again *is* future, and *will be* present and past. The characteristics are only incompatible when they are simultaneous, and there is no contradiction in the fact that each term has them successively.[55]

However, McTaggart is not claiming that events have these incompatible terms simultaneously. Instead, his claim is that events cannot have these terms *successively*, because succession is incompatible with events co-existing at different positions in time. To explain this, McTaggart says if we think about the statement 'M is present, has been past, and will be future', we see that it means:

> M is present at a moment of present time, past at some moment of future time, and future at some moment of past time. But every moment, like every

[54] See Geach (1979), p.100.
[55] McTaggart (1927), § 331.

> event, is both past, present and future. And so a similar difficulty arises. If M is present, there is no moment of past time at which it is past. But the moments of future time, in which it is past, are equally moments of past time, in which it cannot be past.[56]

To understand what McTaggart means, we must keep in mind that he is trying to see whether *apparent* reality (where events appear to lose and gain A-characteristics) is consistent with *absolute* reality (where all substances exist on a par). As we saw above, McTaggart holds that if time is real, an event must be a substance with a temporal location. And as substances (and the relations they hold and the properties they possess) are what constitutes McTaggart's reality, if time is real each event will be a constituent part of the temporal position at which it is located. So, like the events that constitute them, all times must exist on a par. However, when we think of moments as being past, present and future *successively*, we get the following problem. We want to say that a present moment of time *A* is not (is distinct from) a past moment of time *B*. But because there exists a future moment of time at which *A* is past, *A* is equally a moment of past time. So it seems that *A* is both *B* and not *B*. So McTaggart's point is that whether we talk about events or moments being past, present, or future *successively*, the incompatibility still arises.

To try and make this clearer, consider McTaggart's problem in terms of truthmakers (or what makes it true that…). According to the natural objection, it is not true that '*M is* present, *is* future, and *is* past'. Rather it is true that '*M is* present, *has been* future, and *will be* past'. So suppose we ask what makes '*M* is present' true? (Or what state of affairs does '*M* is present' refer to?) For McTaggart, it must be that there exists some event *M*, which possesses the relational quality of being present (or stands in the present relation to some X outside time). This seems straightforward enough.[57] But what makes '*M has been* future' true? (Or what state of affairs does '*M has been* future' refer to?) It cannot be *M* being present, because the *M* that is present is not future. And it cannot be that *M* is not future. The reason for this is that, given McTaggart's ontology, if there exists no time such that at that time '*M* is future' is true, then it will also always be false that '*M has been* future'.[58] Thus, for McTaggart, in order for '*M has been* future' to be true, it must be that *M*'s

---

[56] Ibid.
[57] At least, if we ignore McTaggart's worry that he cannot think what such an X could be.
[58] I follow Ingthorsson's argument here. See Ingthorsson (2016), p.47.

possession of futurity (standing in the future relation to X) is an existing event located in the past.

Similarly for '*M will be* past'.[59] For this to be true, there must exist some *M*, whose possession of pastness (standing in the past relation to X) is an event located in the future. Thus, since for McTaggart all temporally located substances must exist on a par (if time is real), we get the following problem. If we say that *M is* present*, has been* future and *will be* past, this implies that *M* is present in the present, is future in the past, and is past in the future.[60] And this requires that a single event *M* is the constituent part of three incompatible and co-existing times. So the natural objection that events only have these characteristics *successively*, does not avoid the incompatibility.

If McTaggart accepted a B-theoretic account of change, he could avoid the apparent incompatibilitly. For example, McTaggart could claim that events are four-dimensional substances, which are extended in time and have different temporally located parts. He could then claim that different temporal parts of four-dimensional substances have these incompatible properties (or relations), not the four-dimensional substances themselves. Consider a football match that has a boring first-half and an exciting second-half. According to certain B-theorists, when we report on this, we only ascribe these incompatible properties to *different* temporal parts of the match. Thus we avoid ascribing incompatible properties (being both boring and not-boring) to the match as a whole. However, this account is not an option for McTaggart. For McTaggart, a temporal parts account of change is *not* an account of change, because it merely describes variation across an unchanging domain.[61] Nor is it an option for McTaggart to say that a four-dimensional substance stands in *permanent* relations to different times. For example, that the football match bears the boring-at relation to t_1 and the not-boring-at relation t_2. Again, for McTaggart, this account describes variation across a permanent domain, but not change. For McTaggart, if time is real, there must be a viable account of A-series change. But this is what he cannot find.

---

[59] For example, what makes '*M will be* past' true, cannot be *M* being present, because the *M* that is present is not past. And it cannot be that *M* is not past; because if 'M is past' is not true, then it will always be false that 'M *will be* past'.

[60] A single event stands in the is-present relation to X, stands in the is-future relation to X, and stands in the is-past relation to X.

[61] Given eternalism, if the football match has one temporal part that is boring and a different temporal part that is not boring, each of those temporal parts has those properties *permanently*.

Thus, McTaggart concludes that there is no way to avoid the contradiction that is inherent in the A-series. He explains that the contradiction apparent in the three simple first-level predicates (past, present, and future) is not removed by the natural objection. This is because when we say that events have A-characteristics *successively*, we find that we have nine second-level predicates, which are equally incompatible. For example, 'was future' means 'future in the past'; 'is present' means 'present in the present'; and 'will be past' means 'past in the future'. And the contradiction that appears at the second-level is not removed by going up another level, because then we find we have twenty-seven third-level predicates, which are also incompatible.[62] So McTaggart says that by claiming that events only have A-characteristics *successively*, we embark on an infinite regress, in which the contradiction reappears at the next level, and so on, infinitely. Moreover, McTaggart says this regress is vicious. This is because at each stage of the regress, not only does another contradiction appear, but the previous contradiction is never solved.

For McTaggart, the contradiction occurs because his analysis of 'apparent time' (given in present experience) conflicts with his ontological account of existence. According to our phenomenological experience of time, time consists of successive parts that do not co-exist. But according to McTaggart's ontology, if time exists, this must be because it is constituted by parts that co-exist. It follows from this, for McTaggart, that each event occupies at least three different positions in the A-series. This, in turn, means that an individual event must be the constituent substance of these three positions. McTaggart therefore concludes that the A-series is inherently contradictory, and must be rejected. And without the A-series, as there is no change and no time, there can be no B-series. McTaggart therefore says;

> Nothing is really past, present or future. Nothing is really earlier or later than anything else, or temporally simultaneous with it. Nothing really changes. Nothing is really in time. (*NE* 333).

Instead, we are left with our perceptions, which McTaggart says are erroneous. And time is thus an illusion.

To sum up. Having distinguished the A-series and the B-series, and argued that they are both essential for time, McTaggart rejects them both by way of a 'plague on

[62] For example, 'present in the present' means 'is present in the present in the present.' And 'future in the past' means 'is future in the past in the past', and so on.

both your houses' argument. The plague on the B-series, according to McTaggart, is that the B-series is not sufficient to constitute a *time series* without the A-series. The plague on the A-series, according to McTaggart, is that it is inherently contradictory. Having already argued that both series are essential if time is real, and having found reason to reject them both, the only conclusion McTaggart can make is that time is unreal. Having concluded that time cannot exist without the A-series, McTaggart provides an error theory of time.[63] This is the C-series, which is the non-temporal series of events we *misperceive* as a time series. We consider the nature of McTaggart's C-series in the next chapter.

Part 2. Responses to McTaggart's Paradox

McTaggart's argument is sometimes dismissed on the grounds that it is nothing more than a trivial sophism.[64] Those who hold this view typically claim that the incompatibility is removed either by a regress of tenses, or by noticing that the indexical nature of tensed ascriptions is merely perspectival; and hence that different ascriptions of A-properties can nevertheless report the same facts.[65] However, other philosophers take McTaggart's argument more seriously, and hence think it requires a more substantial response. Among these are A-theorists who need to show that the A-series is not contradictory, and B-theorists who need to show that the B-series does not depend on the (contradictory) A-series. The purpose of this section is to consider some of these A-theoretic and B-theoretic responses to McTaggart. As mentioned in the introduction, saying what is wrong with McTaggart's argument is not always easy. This is partly because McTaggart's complex argument is not the clearest. Consequently, in their discussions of McTaggart, many philosophers reconstruct McTaggart's argument, in order to clarify the issues and bring out additional points and hidden assumptions. Below, we refer to the responses of two philosophers who provide their own reconstructions of McTaggart; an A-theoretic response by Michael Dummett, and a B-theoretic response by D. H. Mellor. However, we begin by discussing A- and B-theoretic responses to McTaggart in general terms.

---

[63] An error theory is a theory that explains why we misperceive particular features of reality, taking them to be things that they are not. For example, mistaking non-moral features for moral ones. Or mistaking non-temporal features for temporal ones.

[64] For example, C. D. Broad calls McTaggart's argument 'a philosophical howler.' More recently, Sider (2011, p.35, n.19) quotes Broad in agreement.

[65] This is 'the token-reflexive objection'.

McTaggart's argument is formally valid. Thus to avoid the conclusion that time is unreal, both A-theorists and B-theorists have to find fault with one of the argument's premises. A-theorists agree with McTaggart that the tenseless account of variation over time, provided by the B-series, is not sufficient for change. So the onus on the A-theorist is to explain why an A-theoretic account of change does not involve temporal entities having contradictory properties. Different A-theorists have different accounts of how to avoid the contradiction (explained below).[66] However, they all involve the claim that tense is a feature of the world, and not merely a feature of language. That is to say, that the present is privileged in some objective way in which the past and future are not.[67] A-theorists thus take the basic temporal facts to be ones that exemplify A-properties.

B-theorists typically accept McTaggart's claim that the A-series is contradictory.[68] However, B-theorists claim that they can avoid McTaggart's conclusion because the B-series does not depend on the A-series in order to be a time series. B-theorists claim that the tenseless terms of the B-series are sufficient to account for change, and therefore constitute a time series. For example, B-theorists standardly explain change in terms of variation within the four-dimensional manifold. That is, either in terms of perduring objects varying the relations they have to different times (object X is *f* at t_1 and not-*f* at t_2); or in terms of perduring objects having temporal parts, with different properties (object X has a temporal part that is *f* and a temporal part that is not-*f*).[69] As B-theorists also deny any *objective* distinction between past, present and future, they hold that all the fundamental truths involve tenseless and permanent B-relations. Thus, in terms of responding to McTaggart, the onus on the B-theorist is to show that the B-series account for change is adequate. As we shall see, part of this involves explaining how ordinary tensed language can be explained in terms of a tenseless reality, thereby providing an account of change that does not involve tensed properties or tensed facts.

The various A- and B-theoretic responses to McTaggart's paradox pave the way for disputes in the metaphysics of time, which will be discussed in Chapters 3 and 4.

---

[66] For example, presentists deny the contradiction because they claim the only objects that exist and bear properties and stand in relations are the ones that presently exist. Some eternalist A-theorists claim that the regress is benign, while others claim that only present objects have intrinsic properties, or spatiotemporal locations.

[67] Note again that 'objectively privileged' does not necessarily mean ontologically privileged.

[68] For example, Mellor, Oaklander, Le Poidevin, and Dyke.

[69] Mellor is an exception here. Mellor is a B-theorist who claims that entities must *endure* in order for change to be real. We consider this view in Chapter 3.

These disputes (which take place between A-theorists and B-theorists, between tense realists and tense anti-realists, and between presentists and non-presentists) concern the nature of temporal truths, temporal existence, and the reality or otherwise of tense, change, and temporal passage. The purpose of this part of Chapter 2 is to start untangling some of the A- and B-theoretic responses to McTaggart, which are continued in Chapters 3 and 4. We shall see that the various responses to McTaggart do not always neatly line up, with A-theorists and realists about tense in one group, and B-theorists and anti-realists about tense in another. The reason for this is that although all A-theorists are realists about tense, not all B-theorists are anti-realists about tense; for example, Mellor and Lewis are *non*-anti-realists about tense. Moreover, while B-theorists all share the same ontological picture of reality (eternalism), which underpins their different accounts of the role of tense, A-theorists have a number of very different ontological pictures of reality, which underpin their accounts of the reality of tense. And while all A-theorists are realists about tense, there is an alternative A-theoretic response to McTaggart; Kit Fine's 'non-standard realism' about tense. Fine argues that realism about tense is only compatible with an incoherent or fragmented picture of reality. We therefore have to differentiate the various responses to McTaggart's argument carefully.

2.4 A-theoretic responses to McTaggart

A-theorists agree with McTaggart that the A-series is necessary for change, and that without the A-series, the B-series is not a satisfactory time series. Hence to avoid McTaggart's conclusion that time is unreal (or at least, to defend a dynamic account of time), the A-theorist needs to respond to McTaggart's claim that the A-series is contradictory. The first A-theoretic response we consider here is that of Michael Dummett. We shall then briefly outline some other A-theoretic responses to McTaggart, which are then considered in more detail in the next two chapters.

2.4.1 Dummett's McTaggert

In 'A Defense of McTaggart's Proof of the Unreality of Time', Dummett reconstructs McTaggart's argument. Dummett's intention is to show that McTaggart's argument is not a 'trivial sophism' because it contains a substantive thesis; namely, the assumption that there is a complete (observer-independent) description of reality. Dummett claims that once this assumption is brought out, we can see that McTaggart's argument does not fall prey to the natural objection (the claim that we

can avoid the contradiction by appealing to the hierarchy of tenses), or to 'the token-reflexive argument' (the objection that tensed statements do not report contradictory facts, because they are merely reporting the *same* facts from different temporal perspectives). Hence, Dummett says that the 'complete description thesis' is the key assumption in the first part of McTaggart's argument. [70]

Despite rejecting the natural objection and the token-reflexive argument (as ways of avoiding the contradiction), Dummett does not endorse McTaggart's conclusion that the A-series is contradictory.[71] Instead, he argues that there is something special about the nature of time, *in contrast* to other phenomena that we use indexicals (or token-reflexives[72]) to report on, such as place, and person. More specifically, he argues that indexicals involving tense are essential in such a way that there *cannot* be a complete description of reality. According to Dummett, the assumption that there *can* be a complete description of reality is what leads to the contradiction in the second part of McTaggart's argument. Dummett admits that there is a strong natural prejudice to think that there should be a complete description of reality, but he claims that McTaggart's argument is actually self-refuting. The A-theorist therefore has a way out of McTaggart's paradox; namely, by giving up the idea that there can be a complete description of reality.

Dummett's reconstruction takes a different route than McTaggart's original argument. He begins by summarizing McTaggart's argument and the natural objection. Dummett has no objection to iterating tenses, but he says that the argument about the hierarchy of tenses is inconclusive, and hence it does not avoid the contradiction.[73] Instead, he turns to the first part of the argument, as he claims this provides the key to understanding how to avoid the paradox. Moreover, because Dummett's reconstruction focuses on bringing out the difference between time and space, Dummett does not explicitly argue about change. Nevertheless, his argument is *indirectly* about change. This is because the movement of our consciousness through time is dynamic, and Dummett claims that we need indexicals involving tense (or tensed statements) to report on our experience of

[70] Dummett (1960), pp 497-504.
[71] Dummett accepts that the A-series is contradictory *as McTaggart presents it,* but argues that we can avoid this conclusion by rejecting the complete description thesis.
[72] Dummett follows Reichenbach (1947) in using the term 'token-reflexives' for what most contemporary philosophers describe as 'indexicals'. I shall use the terms interchangeably.
[73] Dummett's argument is carefully conditional. He says *if* there is a contradiction at the first level of tenses, it is not removed by a hierarchy of tenses. However, Dummett *does* seem to think there is a contradiction.

temporal passage. Dummett also says that it is incidental to the argument that McTaggart formulates it in terms of events. He says that the issues still arise even if we deny that there are events, or that past, present and future are properties, because the argument could equally be stated in terms of objects. Let us consider Dummett's argument in detail.[74]

After summarizing McTaggart's argument, Dummett explains why some people do not take the argument seriously. He says that in McTaggart's original formulation, the incompatibility is held to occur because each of the three (incompatible) first-level predicates 'is past', 'is present' and 'is future', are said to apply to each event. The natural objection is to say that these predicates apply *successively*; so for any event it '*will be* past', *'is* present' and '*was* future', and hence there is no incompatibility. McTaggart's reply is that the incompatibility is not removed; it just moves up a level. For example, an event that is 'present in the present', is also 'future in the past', and 'past in the future'. Thus, if we try to avoid the incompatibility in the first-level predicates, we find that we have nine second-level predicates, which are equally incompatible. Similarly, if we try and remove the contradiction at the second level by saying that each event is only 'present in the present' successively, we get a new contradiction. For example, an event that is 'present in the present in the present' is also 'past in the present in the future', and so on, resulting in twenty-seven incompatible third-level predicates. Dummett says that at each level when the contradiction is removed, a different one remains. Hence Dummett claims the hierarchy of tenses does not remove the contradiction.

Next, Dummet explains why the token-reflexive argument fails to show that McTaggart's argument is a trivial sophism. According to the token-reflexive argument, statements involving A-properties do not report contradictory facts, because they are merely reporting the *same* facts from different temporal perspectives. (The argument is thus a deeper attempt at bringing out what the natural objection was trying to get at.) However, according to Dummett, the token-reflexive argument fails, because it fails to see that McTaggart's argument involves claiming that there is something distinctive about indexicallity in relation to time, *in contrast* to space or person. According to Dummett:

[74] In the following discussion I am indebted to Mike Martin's 'Time and Tense' seminar series, University College London, Spring Term, 2012.

> A token-reflexive expression is one like 'I', 'here', 'now, whose essential occurrence in a sentence renders that sentence capable of bearing different truth-values according to the circumstances of utterance – by whom, when, where it is uttered … and so forth. [75]

Dummett says that objectors claim that they can reconstruct McTaggart's argument, bringing out the token-reflexive aspects of it, in a way that makes it clear that there is no contradiction. The objector argues that 'If we say of a predicate in which a token-reflexive expression occurs essentially that it 'applies' to an entity if there are any circumstances in which it can be truly asserted of that entity, and if there we call two such predicates 'incompatible' when there exist no circumstances in which they can both be truly asserted of any one entity, then it is possible for incompatible predicates to apply to one and the same entity.'[76] For example, when reporting on the location of my cat (Wolfgang), the fact expressed by the sentence 'Wolfgang *is* in the kitchen' as uttered today, can equally well be expressed by the sentence 'Wolfgang *was* in the kitchen' as uttered tomorrow. Hence, the objector claims there is not really a contradiction.

However, according to Dummett the token-reflexive objection does not work. His argument for this is involves claiming that there is something *distinctive* about indexicals involving time. As we shall see, this argument is *not* the weaker thesis; that there is something distinctive about sentences involving indexicallity in relation to time, *in contrast to* sentences involving indexicality with respect to space or person. (Although Dummett *does* think there is a distinction between temporal facts, and spatial and personal facts.) Rather, it is the stronger thesis; that A-series facts are such that *if* there is a sentence that expresses a particular A-series fact, then *only* that sentence, or certain suitable translations of it (ones involving *the same* tense-inflexion), can be expressing the same fact.

The weaker thesis invloves the idea that there are some cases in which *the same fact* can be captured by non-equivalent sentences. For example, for some truth about the *spatial* organization of the world, which you could express using an indexical vocabulary, *the fact* reported on can equally be reported on by some

[75] Dummett (1960), p. 353.
[76] Ibid.

sentence that does not contain indexical vocabulary.[77] Thus, if I am in the kitchen with Wolfgang, *the fact* reported on by the sentence 'Wolfgang is here' can equally well be reported on by the sentence 'Wolfgang is in the kitchen'. Some people have interpreted Dummett's argument as the claim that, in contrast to facts involving personal or spatial indexicals, facts involving *temporal* indexicals cannot equally be reported on by sentences using non-indexical vocabulary. For example, that the fact reported on by the tensed sentence 'the train departs 5 minutes from now' as uttered at 11.55am, cannot equally be reported on by the tenseless sentence 'the train departs at noon'. Although Dummett agrees that the tenseless sentence leaves out the essential information we need in order to act on it (namely, the relation is between now and noon), this is *not* Dummett's argument for what is distinctive about indexicals involving time.

Hence, the stronger thesis Dummett appeals to is *not* that tenses inform us in a way that cannot be captured by using non-indexical vocabulary (in contrast to statements about space or persons). Rather, it is the claim that what is *distinctive* about time is that temporal facts are such that they *must* include the temporal relation to the person apprised of those facts; and *crucially*, that this not only means that you have to be *in time* to capture the temporal facts, but also that there are certain facts that can *only* by captured from the perspective of the present tense.

Dummett argues as follows. Someone might think that temporal facts can *only* be expressed using sentences, which have some indexical component in relation to time, such as sentences that involve significant use of tense. Here, we might suppose that different sentences involving different temporal perspectives can express *the same fact*. (Consider again the claim that the same fact is expressed by 'Wolfgang *is* in the kitchen' as uttered today, and 'Wolfgang *was* in the kitchen' as uttered tomorrow.) But Dummett says the debate between tensers and detensers cannot simply be a debate about whether the facts reported by true tensed statements can only be expressed by other tensed statements, since this condition is too weak to capture McTaggart's worry about the incompatibility. To explain why, Dummett considers the example of a piece of paper, which changes from white to yellow over time.[78] For example:

[77] Statements made about the spatial organization of things, which do *not* use any indexical vocabulary, are the spatial equivalent of the B series.
[78] As Dummett was a heavy smoker this is not actually a far-fetched example.

(a) On day_1 an utterance of 'The paper is white' expresses a truth.
(b) On day_{16} an utterance of 'The paper is yellow' expresses a truth.
(c) No piece of paper is both white and yellow.[79]

The incompatibility claim (c) suggests that (a) and (b) are incompatible. However, by noticing the indexical vocabulary used to state these claims, we could show that the facts expressed by (a) and (b) are not incompatible. For example, we could also hold:

(d) On day_{16} an utterance of 'The paper was white' expresses a truth.

The idea here is that the fact reported by (a) on day_1 (the paper is white) and the fact reported by (d) on day_{16} (the paper was white) is *the same fact*. And since we do not suppose that (d) (the paper was white) is incompatible with (b) (the paper is yellow), it is not clear why (a) should be incompatible with (b).

Dummett's point is that even if facts expressed by significantly tense-inflected sentences can only be expressed by other significantly tense-inflected sentences, *this does not bring out the incompatibility*. (Since two suitably tensed sentences, such as (a) and (d), uttered on different days, might be reporting the same fact.) Therefore, Dummett says that the mere commitment to essential indexicality in sentences involving tense does not get us McTaggart's problem, because it does not bring out the incompatibility. Dummett says that McTaggart does not make this explicit in his argument.

So to bring out McTaggart's problem, when Dummett says that token-reflexive expressions enter essentially into A-series facts, he has a stronger idea in mind. This *stronger thesis* is the idea that the fact that is reported on day_1 (the paper is white) can *only* be reported by a *present tense* inflected sentence.[80] According to this claim, the fact reported by sentence (a): 'the paper is white' uttered on day_1, *cannot be the same fact* as the fact reported by sentence (d): 'the paper was white' uttered on day_{16}. In which case, sentence (d) does not remove the incompatibility between the facts reported by sentence (a) and sentence (b). Thus, the incompatibly we get is between the two *present tense* statements;

[79] That is, completely white and completely yellow.
[80] Or something that has the same semantic function as the present tense in English.

(a) The paper is white.
(b) The paper is yellow.

Hence, Dummett's argument is that what is special about time is *not* captured by appealing to the idea that temporal indexicals are *essential*, whereas some spatial and personal indexicals are not.[81] Nor is it captured by appealing to the claim that facts involving temporal indexicals can *only* be captured by sentences using other temporal indexicals. The reason for this, as we have seen, is that holding that '*x* is *F'* and '*x* was *F'* does not generate the contradiction. Rather, Dummett's claim is that what is special about time (as opposed to space and person) is that there are some facts that can *only* be captured by using the *present tense*. Dummett then uses this claim to argue against what he takes to be the key assumption in McTaggart's argument; namely that 'reality must be something of which there exists in principle a complete description.'[82]

Dummett claims that you can survey the totality of spatial facts in a way that you cannot survey the totality of temporal facts. He says that there is no difficulty in conceiving how an observer could be *outside* of a space, but still be in a position to represent all of the spatial facts. For example, we could imagine a map of the world, which represented all the spatial facts from a purely objective viewpoint. According to Dummett, we do not have to picture ourselves situated *within* that map to grasp all the spatial facts. However, in the case of time, Dummett claims that as a thinker you could not stand outside of a totality of temporal facts and represent them. Dummett's thought here is that to represent temporal facts is always to represent them in some temporal relation to your current consciousness, which is a perspective immersed in time. Moreover, in representing something in relation to your own consciousness, you are necessarily using some indexical mode, *which can only be present tense*. Thus, in the temporal case, indexicality is always tied to the present perspective. So, according to Dummett, to give a complete description of reality, we would have to be able to represent all the temporal facts from this (present tensed) perspective within time.

[81] This is just as well, since there is also an irremovable informativeness in the case of some facts involving personal and spatial indexicals. For example, we could not get by without using 'I', 'you', 'here' or 'there' in expressing some of the things we know.
[82] Dummett (1960), p. 356.

However, the problem with this is that as our consciousness moves through time, this temporal perspective that we are immersed in is always changing. So, according to Dummett, there are some facts that can *only* be grasped from a perspective one occupies temporarily (such as the fact reported by the utterance of 'the paper is white' on day_1). This means that as time passes, these present tense facts are no longer available to be reported on. These facts still obtain, because they remain part of reality (assuming eternalism), but we cannot have a complete description of reality, because we cannot report on them from any temporal perspective *other than the present*.

For Dummett, it is not an option to try to represent the same facts indexically by moving up a level. For example, by claiming that we can report on the fact 'the paper was white' by representing it as obtaining at-some-time-earlier-than the occurrence of *this* (current) thought, 'the paper is yellow'. According to Dummett, this would involve adopting a neutral viewpoint, which involves standing *outside* of oneself as a subject immersed in time, and looking in on oneself, as a subject immersed in time. This would involve placing *the subject* inside the range of the temporal facts; and thereby going beyond the totality of facts that the subject was representing. Moreover, this would involve *accepting* that the subject was not able to represent the totality of temporal facts in the first place. So according to Dummett, whereas you do not have to be in space to capture all the spatial facts, to capture the temporal facts the indexical tie is such that it can *only* be had from the particular perspective you have within time at a given moment.

Someone might object as follows. Even if Dummett is correct to say that you can represent all the spatial facts from outside of space,[83] it does not follow that there cannot be a complete description of all the spatial facts from within space. Similarly, even if we cannot represent all the temporal facts from *within* time, using indexical modes, this does not show that there cannot be a complete description of all the temporal facts. However, this objection misses Dummett's point that the tensed fact represented by the utterance of 'the paper is white' on day_1 is not available to be reported on at some later time. This is what Dummett has ruled out, because that would require us to affirm an inconsistency, or an inconsistent set of propositions. For example, to affirm that the paper *is* white and that the paper *is* yellow.

[83] Dummett has not provided an argument for this.

Hence, Dummett claims that McTaggart's argument cannot be dismissed on the grounds that it fails to notice the obvious properties of token-reflexive expressions. As Dummett's argument shows, McTaggart's assumption that there must (in principle) be a complete description reality, *does* take notice of the obvious properties of token-reflexive expressions. Hence McTaggart *accepts* that temporal reality cannot be described independently of a particular viewpoint, because some of these token-reflexive expressions can only be had from a *present tense* perspective *within* the time series. Dummett says that McTaggart's conclusion follows from the complete description thesis; namely, that events have incompatible A-properties, and hence the A-series is contradictory, and time is unreal. Thus, for Dummett, the only way to avoid McTaggart's conclusion is to deny the complete description thesis. That is, to accept that certain facts expressed by sentences involving temporal indexicals are no longer available to be reported on; and hence, we cannot reveal either their inconsistency or consistency with other facts. So, according to Dummett, if we accept that tense is essential for the reality of time, we must also accept that there cannot be a complete description of reality.

Dummett's solution to McTaggart's paradox rests on the claim that although certain facts still obtain and are part of reality, we cannot report on them. Hence we avoid the contradiction. Given McTaggart's assumption of eternalism, and his claim that the A-series is essential for change, Dummett seems correct to locate the problem with McTaggart's argument with the complete description thesis. However, it could be objected that since Dummett's argument is about the inescapability of time with respect to consciousness, he only shows that the inability to report on certain tensed facts is due to some psychological failing on our part. In which case, Dummett has not shown that the inability to have a complete description of reality is due to the nature or structure of reality itself. Realism about tense is the claim that there is something about tense-inflection, which is reflecting an aspect of reality. That is, how reality is, independently of our perspectives and psychological limitations. So Dummett's argument does not show that there is something about temporal reality itself, which prevents there being a complete description of it because that description would be incoherent. To show that, Dummett would need to provide something stronger than a psychological argument.

Although Dummett does not conclusively show that *reality* is such that we cannot have a completely neutral description of it, this does not make his argument uninteresting. For example, it does not undermine the claim that if there could be a

neutral view of reality, then A-characteristics cannot occur, and that McTaggart's concluson that time is unreal would follow. The strength of Dummett's reconstruction is that it brings out two things that are not obvious in McTaggart's original formuation. First, that McTaggart's argument relies on his key assumption that there is a complete description of reality, and that we can avoid the paradoxical result by rejecting that assumpton. And second, that central to the debate is understanding how there is something distinctive about indexicality with relation to time, in contrast to space and person. Namely, the stronger thesis that we cannot stand outside the totality of temporal facts and represent them, because to represent them is always to represent them as in some relation to our current consciousness.

Let us grant that our inability to give a complete description of reality is not due to psychological limitiatons, but due to some aspect of reality itself. In that case, Dummett has not really explained what the point of evaluation is, which is holding apart facts, which would otherwise be incompatible when they were all brought together in the complete description. *Were* Dummett a presentist, there would be an easy answer.[84] For the presentist, the present is the point of evaluation; because only present objects exist, and hence the only facts that there are, are the facts there presently are. So it is never that case that non-present facts obtain, because they are not part of reality. Thus for the presentist, the structure of reality itself is what prevents there being incompatible tensed facts. (This is also why the presentist can easily avoid McTaggart's paradox, because when day_{16} is present and the paper is yellow, the fact that obtained on day_1 (the paper *is* white) is no longer part of reality. So the complete description thesis is not in play for the presentist.)

In contrast, Dummett holds that non-present facts obtain and are part of reality. Hence, Dummett is *not* an anti-realist with respect to the *existence* of non-present times and non-present facts. So although for Dummett the present is the point of evaluation, it is not completely clear why this is so. Dummett's 'anti-realism' about the past and the future is concerned with the idea of truth being evidentally constrained in some way, from the perspective of the present. For Dummett this might involve past and future truths not being available due to a kind of epistemic

[84] Dummett is not a presentist, although he is sometimes described as such.

indeterminism; but if this is correct, we might still ask what makes the present (or now) special in this case.

Fine suggests that Dummett is some kind of 'non-standard realist about tense'.[85] In the section below, we see how Fine reconstructs McTaggart's argument, bringing out what he takes to be the incompatible positions. In Fine's way of categorizing things, Dummett seems to fit best with Fine's 'external relativism'. The external relativist avoids McTaggart's paradox by denying that the constitution of reality is an absolute matter. So the facts that constitute reality *obtain* relative to times, but they do not exhaust reality. Hence, we cannot give a complete description of reality, because the composition of reality shifts with time.

As we have seen, for Dummett what is distinctive about tense (in contrast to spatial or personal indexicals) is that we cannot think about time without addressing the question of how we relate to it from *within* time. Hence our thinking about reality *itself* occurs in time; that is, at some time or other. So the idea here is that athough reality is not restricted to the present, we experience certain tensed facts obtaining relative to the perspective we are conscious of (the present). Hence the act of thinking is what marks the present out as the point of evaluation, although it is not a privileged perspective in any other sense. And as we have different perspectives over time, what constitutes reality from our perspective changes over time. So this is why Fine suggests that Dummett might be an external relativist.

It is not clear whether Fine's external relativism is a coherent position. But if it is, it provides a way of understanding how Dummett can combine realism about tense, with the idea that there is *a sense in which* the past and the future have less reality than the present. This, in turn, could explain what it is that keeps (otherwise contradictory) tensed facts apart, such that we cannot have a complete description of reality, *without* restricting reality to the present, as the presentist does.

2.4.2 An outline of Fine's response to McTaggart

Kit Fine develops a strengthened version of Dummett's type of argument. Like Dummett, Fine reconstructs McTaggart's paradox with the intention of showing how the realist about tense can avoid the paradox. However, Fine is more explicit in

[85] Fine (2005), p. 279n.

arguing that the reason that we cannot have a complete description of reality *is due to the nature of reality itself*. What follows is an outline of Fine's argument, as a response to McTaggart. Fine's way out of the paradox involves rejecting standard realism about tense (or standard A-theories). We consider his arguments for rejecting standard A-theories in Chapter 3.

Fine reconstructs McTaggart's argument in terms of the following four commitments, which he claims are inconsistent:

- Realism: Reality is constituted, at least in part, by tensed facts. For example, it is constitutive of reality that the paper *is* white, and it is constitutive of reality that the paper *was* white.
- Neutrality: No time is privileged. The tensed facts that constitute reality are not orientated towards one specific time.
- Absolutism: The constitution of reality is an absolute matter. So the facts that constitute reality are not relative to one time or another. (For example, if the fact that 'the paper is white' constitutes reality at day_1, it must constitute reality at day_n, even if day_n is not privileged.)
- Coherence. Reality is not contradictory, or constituted by inconsistent facts. So claims of the form 'it is constitutive of reality that *p*' are coherent, in the sense that all of the *p*s could be true.

Fine then characterises the standard positions in the metaphysics of time in terms of which one of these four commitments is rejected. For example:

- Standard B-theorists reject Realism. For the standard B-theorist, the fundamental facts that constitute reality are *tenseless*. So it is not really the case that the paper *is* white or that the paper *was* white. Rather, what is the case is that the paper is white at *t*, and not white at *t**.[86]

- Standard A-theorists reject Neutrality because they privilege the present. The presentist claims that the present is *ontologically* privileged. Whereas other A-theorists claim that the present is *metaphysically* privileged in some other way. A-theorists then use the notion of the privileged present to develop various ways to avoid McTaggart's paradox (explained below).

[86] So the standard B-theorist accepts neutrality, absolutism, and coherence.

Although these two approaches are the standard ways to block McTaggart's paradox, Fine is not satisfied with either. According to Fine, in rejecting Realism, the standard B-theory trivialises temporal passage. And in rejecting Neutrality, the standard A-theory fails to account for passage at all.[87] Instead, Fine says that if we want to be *realists about tense* we should be 'non-standard realists about tense'. He suggests two versions of this non-standard A-theory, which both combine Realism with Neutrality:

- External Relativism. This is the claim that what is constitutive of reality itself varies with time. This is because reality obtains relative to perspectives, but none of them is privileged. This involves upholding coherence by rejecting absolutism.[88]
- Fragmentalism. This is the claim that there are true claims such that 'it is constitutive of reality that *p*', and 'it is constitutive of reality that *q*', where somehow *p* and *q* do not cohere together. This involves rejecting coherence.

For reasons explained in Chapter 3, Fine favours fragmentalism over external relativism. According to Fine, fragmentalism enables the non-standard realist to adequately account for change *and* avoid McTaggart's paradox. For example, the fragmentalist can hold that reality is such that the fact that it *is* Monday obtains and the tensed fact that it *is* Tuesday obtains, even though these tensed facts do not cohere. It is not clear whether fragmentalism is intelligible, but even if it is, Fine's response to McTaggart is quite radical, as it comes with the cost of giving up the idea that reality forms a coherent whole.[89]

2.4.3 An outline of non-presentist A-theorist responses to McTaggart

However, for most A-theorists, even if Fine's non-standard A-theories are intelligible, adopting non-standard realism about tense is too high a price to pay. Moreover, they claim that they do not need to. In this section, we outline alternative ways in which certain *non-presentist* A-theorists explain how reality itself is both fundamentally tensed *and* changing, and how it can be coherently and accurately

[87] Fine claims that the standard realists' account of passage amounts to a series of static times, when what we wanted was a *succession* of times. We examine this claim in Chapter 3.
[88] We examine External Relativism, and explain why it is problematic, in Chapter 3.
[89] In Chapter 3 we consider whether Fine's non-standard realism is intelligible.

described as such, whilst avoiding McTaggart's paradox. These accounts are considered more fully in the next chapter. We begin with the eternalist A-theories.

2.4.3.1 Eternalist A-theories: The Moving Spotlight

Eternalist A-theories combine two central commitments. The first is that all times exist on a par; so there is a permanent domain consisting of all past, present, and future entities. The second is that there is some metaphysically privileged and non-time-relational property, which is identified with *being present*, such that enduring entities are only present temporarily.[90] These A-theorists claim that the notion of a metaphysically privileged present enables them to use the present tense to develop various ways of accounting for change and the passage of time, within this domain of permanently existing entities. As eternalist A-theorists claim that what makes the present special is some *objective* feature of the world (as opposed to our merely subjective viewpoint), each different type of eternalist A-theorist identifies what this objective feature is. This is held to be having some unique property or properties, which all non-present entities lack. Here we consider the most familiar version of A-theoretic eternalism: the moving spotlight theory.

The moving spotlighter identifies the property of being uniquely present with the property of being *under-the-spotlight*. The idea here is that as the spotlight moves, it shines on different parts of the manifold, endowing them with the temporary property of being uniquely present. On this view, objects in the manifold do not change with respect to their ordinary concrete properties.[91] Nevertheless, the spotlighter holds that *reality as a whole changes*, because the spotlight used to be shining on a different part of the manifold. This is a very minimal account of change, as the change occurs for different regions of the manifold, rather than for objects themselves. However, by privileging just one moment of the manifold at a time, the spotlighter uses the notion of primitive tense to distinguish what *is* the case, from what *was* and what *will be* the case.

For example, consider the reign of Queen Victoria. At one time the spotlight was shining on the part of the manifold where Victoria was Queen; but now reality has

[90] So the notion of a 'metaphysically privileged' present is used here to describe being *merely* metaphysically privileged, in contrast to being 'ontologically privileged'. (See note 4 above)
[91] In this respect, the spotlighter agrees with the B-theorist that all past, present and future entities exist permanently and concretely.

changed because the spotlight is shining elsewhere. According to the spotlighter, although Victoria is alive and reigning in her part of the manifold, her reign is no longer present. So how is the spotlighter to express the fact that Victoria is no longer Queen? She cannot appeal to the B-theorist's tenseless accounts of change, as these merely describe variation.[92] Nor can she say 'Victoria was Queen', because this leads to McTaggart's paradox. (Recall that '*M was* present', means '*M is* present in the past'. And combined with the claim that all temporal entities are on a par, this also means that '*M* is present in the present'. Hence we have the contradiction, because nothing can be both present *and* past.) So in order to adequately express this change in an *A-theoretic* way that avoids McTaggart's paradox, the spotlighter uses primitive tense operators.

Tense logic is the modal-logic developed by Prior, where he explores the idea that there is a close analogy between modality and time. Although the spotlighter adopts certain aspects of Prior's tense logic, in order to express what is special about the dynamic present, she does not adopt all the commitments of Prior's tense logic. Specifically, as an eternalist, she does *not* endorse Prior's rejection of the existence of merely past and merely future individuals or times.[93] Hence, it is important to remember that the view expressed below *conflicts* with Prior's view about the existence of merely past and future entities and times.

There are four Priorian tense operators. The first two are the 'sometimes' operators:

- *P* : meaning 'it was the case'. (Or at some past time)
- *F* : meaning 'it will be the case'. (Or at some future time)

These correspond to the weak modal operator, possibly (formally $\Diamond$), meaning 'it is possibly the case'. This is standardly taken to be weak, because for any truth *p*, it follows from that that possibly *p* ($\Diamond p$).

The next two are the 'always' operators:

- *H* : meaning 'it has always been the case'.
- *G* : meaning 'it will always be the case'.

[92] A-theorists reject B-theoretic accounts of change on the grounds that they merely describe how things *permanently* are at different times.
[93] Prior's view is outlined in §2.4.4 below.

These correspond to the strong modal operator, necessarily (formally, □), meaning 'it necessarily is the case.' These are standardly taken to be strong, because from necessarily *p* (□*p*), it follows that *p*.

Tense operators are standardly held to work in much the same way as modal operators, in that they restrict the quantifiers in their scope to things that are located at the relevant instant (or world in the modal case). For example, in possible world semantics, the actual world *w** is the world from which all claims about other worlds in the set *W* of worlds *w* are evaluated.[94] Hence, it is claimed that 'possibly *p*' can be interpreted as meaning 'there is some world where *p* at *w*', where *w* is accessible from *w**. In tense logic, the present time is privileged, analogous to the actual world *w** in the modal case. Thus, just as alternative possible *worlds* are standardly held to exist as possible but non-actual states of affairs, in tense logic, past and future *times* are held to exist as alternative but non-present states of affairs. (This is what Prior denies.) Hence, in the modal case, the possible state of affairs *Victoria not becoming Queen* exists, but does not obtain, because it lacks the property of being actual (or actualized). And in the temporal case, the past state of affairs *Victoria being Queen* exists but it does not obtain, because it lacks the property of being present (or how the world is now).[95] For the spotlighter, this is because this state of affairs is no longer under the spotlight.

Thus, by using primitive tense operators, the spotlighter can say:

> *P* (Victoria is Queen), meaning: 'it was the case that Victoria is Queen'.
>
> Formally: *P* ∃x(Qx)

Here the tense operator *P* does not quantify unrestrictedly over the whole domain. Rather, *P restricts* the existential quantifier (∃) to a specific part of the domain; namely, the past. In this way, the spotlighter avoids quantifying over the (present) part of the domain in which *M* (Victoria's reign) is not present or not *under the spotlight*. And this, allegedly, enables the spotlighter to avoid making the

[94] More specifically, in propositional modal logic, there is a set *W* of worlds *w*, where each *w* assigns a truth-value to each simple formula of the language. And one member of *W*, *w** is the actual world.
[95] So Prior denies the existence of such merely existing entities.

contradictory claim that *M* is both under-the-spotlight (is present in the past) and not-under-the-spotlight (is past in the present). Instead what she says is: it is *now* that case that it *was* the case that Victoria's reign is under the spotlight. This tensed sentence expresses a *temporary* proposition, because there was a time when this proposition was false; that is, prior to Victoria's reign. (We can contrast this with the propositions expressed by the B-theoretic claim 'Victoria's reign is earlier-than Elizabeth II's reign', which is permanently true.) So this is how the spotlighter claims to give an A-theoretic account of change, which avoids McTaggart's paradox.

In the next chapter we consider criticisms of the moving spotlight theory, including the objection that it does not escape McTaggart's paradox. We shall also consider the accounts of certain eternalist A-theorists who claim to give a more robust account of change than the spotlighter gives. That is to say, one in which *objects* change their A-properties in some way, rather than change merely involving reality as a whole changing. These accounts include Meghan Sullivan's version of Williamsonian presentism, and Ross Cameron's 'non-standard' moving spotlight theory. As we shall see, for these eternalist-A-theorists, the claim that the present is special involves stripping away all the interesting properties from non-present objects. And hence they claim that change involves *objects* gaining and losing their A-properties as time passes. We also consider another A-theoretic version of eternalism, called 'degree presentism'. However, we shall now consider how the semi-eternalist theory, the growing block, claims to avoid McTaggart's paradox.

2.4.3.2 Semi-Eternalism: The Growing Block

According to the growing block theory, reality consists of all past and present entities. Unlike the 'static' block of the B-theorist, this semi-eternal block is continually growing, as new times and their contents come into existence as they become present. As each new present comes into existence, entities that were formerly present recede into the past section of the block. Hence, on this view, being present involves being *on the edge of the block*. The growing blocker is thus committed to the view that objects exist temporally, because they do not always exist. Instead, it is only after objects come into existence in the present that they continue to exist permanently in the block. The growing blocker can thus explain change, by claiming that objects change by losing the property of being *on the edge of the block*, and becoming increasingly past.

However, the growing blocker can also explain change in terms of previously open propositions becoming fixed. The idea here is that the significance of tense is explained by thinking about the idea that the future isn't fixed. For example, we might think that although the past is all settled, there are multiple possibilities open to us in the future; and they will be settled by what happens today and tomorrow, and so on**.** So there is a multiple branching future, and the actual world selects one of these routes. So looking backwards there is always one line, but looking forwards there are multiple branches, consisting of multiple possibilities. And it is because there are multiple branches that most propositions concerning the future do not have a determinate truth-value. This is typically described as the *unfixity of the future,* but we might also call it the *unreality of the future*. On this view, reality consists of all there is now and has been; but because reality is forever growing, as reality gets bigger, it encompasses more and more facts.

Like the spotlighter, the growing blocker uses tense operators to give as complete a description of how reality *is* and *was*, without running into McTaggart's paradox. For example, they claim that 'it was the case that Victoria is Queen' does not involve claiming that Victoria's reign *is* present in the past. For the growing blocker, the fact that we cannot describe how some aspects of how reality *will be* is not due to any psychological limitation on our part; rather it is because reality is such that the future is not yet fixed. In Chapter 3 we consider some objections to this view, and we also consider a different version of semi-eternalism, Storrs McCalls' 'shrinking tree'.

2.4.4 An outline of Prior's response to McTaggart

In this section we outline Prior's presentist response to McTaggart. Prior's account of presentism brings together a number of semantic and metaphysical assumptions. We have already seen one of these; namely, the idea that there is a close analogy between modality and tense. However, in this section, we consider how Prior's approach to tense and modality supports his particular account of presentism. As we shall see in Chapter 4, not all presentists accept Prior's approach to tense logic.[96] And as we have already seen, other A-theorists adopt certain aspects of Prior's tense logic, without endorsing presentism. However, in the way that Prior articulates his view, tense logic and presentism fit together very naturally.

[96] For example, ersatzer presentists do not accept Prior's approach.

The background assumptions to Prior's views on tense logic and presentism are found in the first chapter of *Past, Present, and Future*.[97] They include the following. As an A-theorist, Prior is committed to realism about tense, so Prior is rejecting the position Fine calls 'neutrality'. Moreover, as a presentist, Prior rejects neutrality on the grounds that the present is *ontologically* privileged. Prior is also committed to propositional temporalism; the view that there are complete propositions that can vary in truth-value. Thus for Prior, the *same* proposition is expressed by the tensed sentence 'the paper is white' on different occasions, and that (tensed) proposition can be true at some times and false at others.

Prior has a particular understanding of modality. As we have seen, Prior holds that significant tenses (past, present, future) are sentential operators. Prior also holds that sentence operators are *prior* in our understanding to truths involving a temporal operator (or modal operators), to any form that quantifies over events or times (or quantifies over worlds). Some people suggest (contra Prior) that because 'possibly *p'* can be interpreted as 'there is some world where *p* at *w*', we should understand our modal operators as implicit quantifiers over worlds. And analogously, because *Fp* means 'it will be the case that *p*', as that involves quantifying over times, that commits us to times. Prior want to *resist* this view. For Prior, even though standard models give a model theory for our tense logic *in terms of times*, times are not fundamental; instead, what is fundamental is given by the sentential operators. Hence, we understand talk of times in terms of propositions about what happens at times; and more fundamentally, in terms of how it 'can have been the case' or 'will be the case'. So for Prior, times are merely constructions out of propositions, and are *not* fundamental in the system.[98] A consequence of this is that Prior gives up the idea that we can reveal our commitments to what is the case in purely extensional terms; that is, by quantifying over objects.[99] (In contrast, the B-theorist can reveal her commitments to what is the case using purely extensional terms.)

Fine distinguishes two way of being a presentist, which are useful for understanding what presentists might be committed to.[100] These are:

---

[97] Prior (1967).
[98] Similarly, for Prior, worlds are not fundamental in our understanding of modality. Instead, what is *really fundamental* is just our grasp of possible ways things could be.
[99] The *extension* of a term refers to the set of all actual things a word or phase describes. For example, the extension of 'cat' is all actual instances of cats (past, present, and future.) The *intension* of 'cat' refers to the logical conditions that specify the set of all possible things that the word 'cat' could describe, including cats that may not actually exist.
[100] Fine (2005), pp. 298-300.

- Presentism with respect to facts (factive presentism). This is the view that all that is the case is what is now the case.
- Presentism with respect to objects (ontic presentism). This is the view that everything that exists, exists now, and is some way - where that's significantly tensed. (And implicitly what that says is that our first order quantifiers range solely over presently existing entities.)

As Fine explains, factive presentism does not entail ontic presentism, so one could accept factive presentism while not accepting ontic presentism.[101] However, Prior is committed to both.

Hence, for Prior, in terms of the facts, *what is the case* is a matter of *what is presently the case*. So when we frame a description of reality, our present temporal perspective has a privilege when it comes to framing what really is the case. And in terms of ontic presentism, Prior takes seriously the view that the existential quantifier only ranges over all the things that there presently are. That is to say, for Prior, it is not true that just because it was the case that Victoria is Queen, that there *is* something that was Queen Victoria. So for Prior, the past tense operator is not something you can existentially generalize out of.

Before we consider how Prior responds to McTaggart, we need to address the question of whether Prior's *tensed* understanding of 'exists' invites the charge of triviality. In Chapter 1 we considered how using a *tense-neutral* notion of 'exists' enabled the presentist to avoid the triviality objection.[102] I claimed there that using a tense-neutral notion of 'exists' enabled the presentist and eternalist to articulate their respective views using the *same* notion of existence; thereby making it clear what they disagree about, and hence that they have a substantial dispute. However, as Prior claims that 'exists' is an essentially tensed notion, this raises the question of whether Prior's articulation of presentism involves anything the eternalist would disagree with.

---

[101] For example, certain tensed realists can accept that there are tensed facts, which concern how things presently are (i.e. factive presentism), while also accepting that all past, present, and future objects exist (i.e. rejecting ontic presentism). In contrast, it makes less sense to accept ontic presentism without also accepting factive presentism. See Fine, ibid.
[102] cf. pp.16-22.

Let us first consider ontic presentism, which Fine describes as an ontological claim about what there is.[103] For Prior, everything that exists, is what exists now, and is some way. (As we shall see, Prior takes 'being some way' to mean being within the range of the existential quantifier.) Ontic presentism is a *restrictive* claim, as it excludes any objects that do not presently exist, from existing now and being some way. So we can get the meaning better by saying '*only* presently existing objects exist now, and are some way'. The first clause ('only presently existing objects exist now') is trivially true. The eternalist can grant this claim because she holds that the first clause is consistent with her claim that non-present objects exist at non-present times. Hence the first clause does not show how presentism is a restricted claim, as the eternalist can agree with it.

So the Priorian needs to show that there is a suitable *restriction* on the second clause 'is some way', such that the eternalist will not agree with it. To do this, she needs to show that 'is some way' *only* applies to presently existing objects; and hence that objects that *did* or *will* exist (but do not presently exist) are not any way at all. I suggest that the presentist's restriction on what it means to 'be some way' should be understood in the context of Prior's tense logic, as follows.

Prior is committed to a temporally varying domain; so he takes seriously the idea that when someone has died, they no longer exist.[104] So if person X no longer exists, and what the existential quantifier ranges over are all the things that there are, then person X is not within the range of the existential quantifier. For Prior, this means that person X is not some way at all. For example, Prior denies that,

(1) Victoria *was* Queen

can be re-written as

(2) Victoria *is* such that she was Queen.

(2) would be to *now* present-tensely ascribe to Victoria the property of being such that she *was* Queen. And if (1) and (2) could be made equivalent in this way, then (contra presentism) it would commit us to the existence of Victoria.

---

[103] See Fine (2005), p. 299.

[104] Similarly, something or someone that does not yet exist is not within the range of the existential quantfier.

However, the Priorian *denies* that (1) is equivalent to (2). According to Prior,

(1) 'Victoria was Queen' should be understood as:

PAST(Victoria is Queen)

Here (1) is embedded within the past tense operator, from which there is no existential entailment.

Understood in this context, it is not open to the eternalist to say that although only present objects exist now (which is trivially true), nevertheless past and future objects *are* some way now. Instead, Prior is denying that past and future objects are any way at all now; and this is a claim the eternalist will not want to accept. So, it is the second clause 'is some way now', that is doing the restrictive work here for Prior. So even though Prior is using a tensed notion of 'exists', we can see what the presentist and the eternalist disagree about. For the presentist, because only presently existing objects are within the range of the existential quantifier, only presently existing objects are some way now. Whereas for the eternalist, because all past, present, and future objects are within the range of the existential quantifier, past and future objects are also some way now; namely the way they were or will be.

Let us now consider factive presentism. In contrast to ontic presentism, which is an ontological view about what there is (or exists), and is some way, Fine describes factive presentism as a metaphysical view about 'how things are quite apart from what there is'.[105] So factive presentism is understood in terms of facts obtaining, as opposed to objects existing and being some way.

For Prior, factive presentism means that everything that is the case, is so in virtue of the facts now obtaining (or the way things are now). So the only facts there are the ones that obtain in the present. Thus, for Prior, everything that *was* or *will be* the case, is so in virtue of the facts now obtaining. For example, the fact that 'Victoria was Queen' is so in virtue of facts obtaining now; namely that it was the case that Victoria is Queen. However, given Prior's *tensed* notion of 'is' (or 'exists'), factive presentism becomes the trivially true claim that all that is (presently) the case

[105] Fine (ibid), p.299.

is what is now the case. The eternalist can accept this claim, because it is consistent with her claim that facts obtain at times *other* than the present. Hence the factive presentist needs to do more to show that they are disagreeing with the eternalist. That is to say, factive presentists need to show what additional restriction is in play, *just at the factual level*, when they say that all the facts there are are the facts there are now.

One option would be to say that factive presentism is a subset of ontic presentism. For example, if one held that all the facts that obtain require truthmakers, and understood truthmakers as the instantiation of properties in objects, then ontic presentism, plus the truthmaker requirement, would entail factive presentism.[106] However, this is not Prior's understanding of factive presentism. This is because for Prior, there are plenty of facts that do not involve the instantiation of properties in objects. For example, the fact that it was the case that Victoria is Queen does not involve the claim that there is now an object (Victoria), which instantiates the property (is Queen), which makes this proposition true.[107]

As was the case with ontic presentism, the way to see what the additional constraints are for Prior's factive presentism is to understand it in the context of his tense logic. We saw above that Prior takes tense operators to be fundamental, rather than interpreting tense operators as quantifiers over times.[108] And we also saw that Prior holds that times are merely constructions out of tensed propositions. For Prior, the basic facts (true propositions) are always expressed by present tensed sentences, and the truth-value of propositions expressed by such sentences can vary over time. Thus Prior takes simple sentences, such as 'Elizabeth is Queen' as equivalent to present tense sentences, and these express the basic facts. The tense operators (P and F) then act as sentential operators, which modify simple sentences, giving complex sentences and iterated tenses; such as P(Elizabeth will be Queen). So for Prior, all that is the case is so in virtue of what is presently the case. And as times are not fundamental, but are merely constructions out of

[106] If facts require truthmakers, and (given ontic presentism) the only objects that instantiate properties are objects that exist now, then the only facts that obtain will be the facts that obtain now.

[107] Prior understands facts in terms of true propositions. Prior holds that sentences can express propositions without there being an implicit reference or quantification over times. Thus he holds that tensed propositions are complete propositions, which can be true at some times and false at others.

[108] As Prior holds that it is temporal operators that are fundamental, he thinks that talk of times is eliminable.

propositions, there are no non-present times for facts to obtain at. Thus, understood in the context of Prior's tense logic, it is not open to the eternalist to agree that all that is (presently) the case is what is now the case, but nevertheless to maintain that facts obtain at times *other* than the present. For the Priorian, there are no times other than the present, and hence the only facts that obtain are those that obtain now.

This provides a way of making it clear what the factive presentist and the eternalist disagree about. The eternalist understands 'true at time *t*' as true absolutely, but restricted to considering some truth from among a larger domain of times. In contrast, the presentist *denies* that there are times other than the present; and it follows from this that no facts obtain other than those which presently obtain. The Priorian factive presentist is therefore making a substantial claim, which the eternalist will not accept, so she avoids the charge of triviality.

Let us consider how Prior might respond to McTaggart. Suppose that we assume that Dummett's reconstruction of McTaggart is correct, and that the complete description thesis is what makes the problem for McTaggart's argument. For a presentist like Prior, there is an easy way to respond. For the Priorian presentist, it is not the case that we cannot *describe* all the alleged incompatible facts. Rather, it is that the alleged incompatible facts do not obtain; so there is no incoherence or contradiction.

According to Prior, what is asserted by the sentence 'the paper is white' is a complete proposition. That is to say, it is *not* an incomplete expression, requiring 'at time *t*' to be added in order to make it into an assertion, and hence truth-evaluable. Nor is it the case that what is *said* using the sentence-type (the paper is white) on any given occasion is just true or false simpliciter. (For example, that 'the paper is white' uttered on day_1 expresses a proposition that is true simpliciter, and 'the paper is white' uttered on day_{16} expresses a different proposition, which is false simpliciter.[109]) Rather, the proposition expressed by the sentence 'the paper is white' is something that can have a *variable truth-value relative to time*; that is, the very same proposition can be true at some times and not at others.

[109] The idea here is that a different proposition is expressed by the same sentence-type on each occasion, in which case there is an *implicit* reference to time.

For Prior, our use of tense reflects something about the way things are, and about fundamental aspects of the nature of time. Moreover, for presentists like Prior, the distinctive role of tense is *not* that of quantifying over events, which change by losing and gaining the properties of being past, present and future.[110] Rather, it is that significant tenses (past, present and future) are sentential operators, which reflect our commitments to what is the case. And given the presentist's metaphysics, there never is a temporally neutral view of reality. Hence some of the facts are just irreducibly temporal facts.

Let presentism (as we have defined it thus far) be the claim that the only objects that exist are the objects that presently exist. For Prior, it follows from this that facts do not obtain at non-present times (because no non-present states of affairs exist for there to be facts about), and properties are not instantiated at non-present times (because no non-present objects exist to instantiate any properties).[111] Thus for the Priorian, the present facts (the facts that obtain in the present) are the only facts there are (or the only facts that obtain simpliciter), and presently instantiated properties are the only properties there are.[112] Let us suppose that Dummett's reconstruction of McTaggart is correct, and that the complete description thesis is what makes the problem for McTaggart's argument. The Priorian presentist has an easy way out of the problem, because there is no such complete (or temporally neutral) description of reality to be had.[113] According to presentism, there is only one temporal perspective from which facts involving indexicals can be reported; namely the present perspective. So the possibility of a complete description of reality, which involves reporting facts involving indexicals from temporal perspectives other than the present, does not arise. So whereas Dummett holds that such facts obtain and are part of reality, although they are unavailable for us to report on, the presentist can hold that such facts do not obtain, and hence are not part of reality.[114] Thus, for presentists, there is no comparison between facts *being*

---

110 Prior rejects events and times as fundamental.

111 This is why, for Prior, it is important that things are stated in terms of the truth of propositions, which can be true at some times and false at others. As we saw above, Prior holds that what is true now is true simpliciter.

112 So Prior is committed to presentism in relation to both facts *and* objects. Other presentists allow that facts can obtain in non-present times; much like some actualists allow that facts can obtain in non-actual possible worlds. For these presentists, non-present times are understood as abstract or ersatz times, existing at the present time. Hence these presentists do not hold objects and facts together in the same way as Prior does.

113 Here again, the presentist rejects the view that Fine calls 'neutrality'.

114 Only facts that presently obtain or exist are part of reality.

made across time. Hence the issue of incompatibility does not arise, and there is no contradiction.

Like all A-theorists, the presentist agrees that significant tense reflects the fundamental nature of reality. However, since they claim that the present facts are the only facts that there are, the presentist holds that as time passes, new facts obtain and previously obtaining facts no longer obtain. Hence, for presentists, the shape of reality changes over time, but not because reality contains more and more facts, or more and more temporal properties. Presentists accept that the utterance of 'the paper is white' on day_1 expressed a truth about the paper, which it will not do now (as the paper is no longer white). However, presentists also think that 'the paper is white' expresses the same proposition whenever it is uttered; and hence that it will report the same fact (the paper is white) when uttered truly on different occasions. This is because presentists hold that there can be complete propositions, which do not involve an implicit reference to times. Thus, the proposition expressed by 'the paper is white' on day_1 is not tied to that particular context of utterance; and that same proposition can be true or false on different occasions; true on day_1 and false on day_{16}. Presentists hold true propositions and facts close together, which is why an utterance of 'the paper is white' can report *the same fact* on different occasions. For example, it can report the same fact on day_3, when the paper is still white, because on day_3 the same fact obtains. However, this does not mean that the paper piles up its properties, such that reality contains too many instances of whiteness.[115] This is because the presentist does not extract the properties from the facts; thus as the only facts that exist are the present ones, the only properties the paper has are its present properties.

Similarly, as a response to McTaggart, the presentist does not have to worry that the hierarchy of tenses generates a contradiction. This is because presentists do not accept that we can iterate tenses *in the way McTaggart suggests*. Again, this is because for the Priorian presentist, other times do not exist. Thus, there are no properties such as being past in the present, or being present in the future. As we shall see in Chapter 4, for presentists it is important that we *can* iterate tenses; this is in order to make claims about non-present objects. However, Priorian presentists standardly claim that the only way to iterate tenses is to use a tense operator, and

[115] So it is not the case that the paper has the properties of being white on day_1, white on day_2, white on day_3, and so on. It will only have the property of being white at the time interval *presently* reported.

therefore cut off any existential commitment to other times and their contents. Thus, when the presentist talks about non-present times or non-present objects they say things like: it was the case that 'the paper is white', or it was the case that 'Victoria is Queen'. But they claim that this does not commit them to the existence of some past time. Hence Prior has an easy way out of McTaggart's paradox. For example, he can claim that although there once was a fact, that 'the paper is white' reported on day_1, that fact no longer obtains. It is therefore no longer part of reality. Hence we avoid being incoherent.

2.5 B-theoretic responses to McTaggart

As we have seen, McTaggart claims that both the A-series and the B-series are necessary for time. However, he also claims that without the A-series, the B-series does not form a time series. The reason for this, he argues, is that change is necessary for time, and according to McTaggart, the B-series is not sufficient for change. Thus, as McTaggart claims that the A-series is inherently contradictory, he concludes that there is no change and no time. So to avoid McTaggart's conclusion, the B-theorist needs to show that the B-series *is* sufficient for change; and hence that the B-series does not depend on the A-series in order to be a time series.

Let us briefly remind ourselves why McTaggart claims that the B-series is not sufficient for change. First, he claims that without the A-series, the tenseless terms of the B-series never change, because they are ordered by relations that are permanent. For example, if event *A* occurs before event *B*, then *A* is permanently earlier-than *B*, and *B* is permanently later-than *A*, and these tenseless relations never change. Secondly, McTaggart claims that for change to occur, it must be the case that facts change. However, he says that the only way a fact about anything can change is to change its position in the A-series. For example, a fact about the death of Queen Ann changes from being true in the future (Queen Ann will die), to being true in the present (Queen Ann is dying), to being true in the past (Queen Ann did die). It follows from this, for McTaggart, that there can be no change unless some propositions can vary in truth-value. That is to say, the proposition that Queen Ann is dead can be false at some times, and true at others.

As was explained above, McTaggart is explicitly rejecting the Russellian account of change. Russell says:

> Change is the difference, in respect of truth or falsehood, between a proposition concerning an entity and the time *T*, and a proposition concerning the same entity and the time *T'*, provided that these propositions differ only by the fact that *T* occurs in the one, where *T'* occurs in the other.[116]

Commenting on this, McTaggart notes that Russell's account does not describe a change in *events* in the time series; rather, it claims to describe a change concerning the different states *in a particular entity* to which those events happen. For example, McTaggart imagines a poker that is hot on Monday, and cold both before and since. He says that on Russell's account, although the *event* of the poker being hot does not change, the *poker itself* is held to change, because 'there is a time when this event [being hot] is happening to it, and a time when it is not happening to it.'[117] However, McTaggart denies that there is any change in the poker. He says that without the A-series, it will *always* be a quality of the poker that it is hot on that Monday and cold at all other times; so these facts never change. So for McTaggart, Russell merely describes a *variation* between two distinct and unchanging propositions, each of which concerns two different states, which *permanently* belong to a particular entity at different times.[118]

Thus for McTaggart, the B-series cannot account for change, because it involves unchanging and fixed relations between temporal entities, and unchanging temporal facts. In order for there to be change, McTaggart says that we need the transitory terms of the A-series. This is because the only way an event (or temporal entity) can change is by losing and gaining certain temporal characteristics, and the only temporal characteristics an event does not always have are A-characteristics such as being currently hot (or being presently hot in relation to some X outside time.) Similarly, the only temporal facts that can change are facts about characteristics an entity does not always have; namely, its A-characteristics. Thus according to McTaggart, only the tensed terms of the A-series capture this dynamic aspect of reality, which is necessary for change, and hence time.

---

[116] Russell, *Principles of Mathematics*, section 442, quoted in McTaggart (1908), p.27.
[117] Ibid.
[118] McTaggart also points out that without the A-series, there would be no time at which these events happen.

The picture of reality the A-theory gives us is one in which linguistic tense is taken to reflect the fact that *reality itself* is tensed. That is to say, that change involves a genuine difference between the ways things in the world are, were, and will be.[119] So the A-theory is seen as providing an ontological account of tense, within which the perspective of the present is fundamental. In response to McTaggart, the B-theorist needs to show that the B-series is sufficient to constitute a time series, because the tenseless terms of the B-series do provide an adequate account of change. To do this the B-theorist either needs to show that statements made using ordinary tensed language can be eliminated, because they can be translated into tenseless ones without loss of meaning, or they need to show that even if tensed statements cannot be eliminated, they nevertheless have tenseless truth-conditions or have tenseless truthmakers. The purpose of this is to show that reality does not have to change in the way the A-theorist says it does, in order for such statements to be true, and therefore that the A-series is unnecessary for time to be real. Thus, the B-theorist typically provides reductive accounts of tense and temporal becoming.

There have been a number of attempts by various B-theorists to show that the B-series does not rely on the A-series, and also that the A-series is false. Here we consider the various B-theoretic accounts of how ordinary tensed language can be explained in terms of a tenseless reality. These are 'the old B-theory of language', 'the new B-theory of time', and a modified version of the latter called 'the Indexical Theory of time'. In the next chapter, we consider the B-theoretic accounts of change; namely, the relational account of change, and the temporal parts account of change (and Mellor's account). We begin with the old B-theory of language.

2.5.1 The old B-theory of language

Proponents of the old B-theory of language include Russell, Frege, Goodman, Reichenbach, Smart, and Quine. They all held the view that in the case of time, tense in ordinary language (or linguistic tense) was misused and had become an obstacle to the correct philosophical and scientific understanding of the world.[120] To rid language of these misunderstandings, they held that tense should be eliminated from language. They therefore argued that tensed sentences could be translated

[119] The A-theorist does not accept the B-theorist's idea that there can be a *genuine* difference between different slices (earlier and later slices) of the block. This is because these different 'slices' of the block are permanent (and unchanging) features of the block.
[120] That is, misused in *philosophical* discourse. See Goodman (1966), p. 355.

into tenseless sentences without any loss of meaning. Two different accounts of this translation process were proposed. The first was to replace tensed sentences with appropriate date or clock times. The second was to analyse tensed expressions in terms of token-reflexivity. As both of these proposed translations are now considered by B-theorists to be failures, I shall just outline them briefly.

2.5.1.1 The date-sentence version

Russell and Frege proposed slightly different versions of the date-sentence version of the old B-theory of language (hereafter the date-sentence version). Here we consider Russell's version and the key issues it raises. Russell held that all expressions involving A-characteristics are ambiguous and should be eliminated. To do this, Russell claimed that sentences involving tense could be translated, without loss of meaning, into sentences involving tenseless verbs and given appropriate dates or times. Russell's idea involved making a distinction between *words* that can vary in meaning in different contexts, and the actual *statements* expressed by those words. For example, Russell said that although words may vary in meaning at different times, any statement expressed by those words does not vary in meaning. Thus, any statements expressed by the same words at different times will be *distinct* statements.

Russell considered the tensed sentence 'Mrs Brown is not at home' (the 'is' here is tensed). Russell said that we might 'know what this means' in different contexts of utterance, but as the statement expressed only makes an implicit reference to a time, its meaning is ambiguous. To make the meaning explicit, Russell said that the tensed sentence 'Mrs Brown is not at home' should be replaced by the tenseless sentence 'Mrs Brown is not at home on May 8, 1906' (the 'is' here is tenseless). As the statement expressed by this tenseless sentence is not variable, the meaning of the sentence is now clear. In this way, Russell claimed to provide ambiguous tensed sentences with eternal propositions as their meanings; that is to say, propositions that are always true or always false.

The date-sentence version was shown to be inadequate, because it became apparent that tensed sentences do not mean the same thing as tenseless sentences or 'date-sentences'. For example, consider Russell's two sentences: the tensed sentence 'Mrs Brown is not at home', and the tenseless sentence 'Mrs Brown is not at home on May 8, 1906'. Suppose someone wants to visit Mrs Brown

at that time. As it stands, the *tenseless* sentence does not convey the information necessary to enable that person to know whether or not Mrs Brown is at home. The information that needs to be added is 'today (or now) is May 8, 1906', which would mean that what is expressed by this sentence is a *tensed* statement. As the tensed statement (or A-statement) is informative in a way that the tenseless statement (or B-statement) is not, this shows that A-statements cannot be translated into B-statements without loss of meaning. Moreover, the fact that A-statements can be repeated in different contexts, in which they convey information that their 'B-translations' cannot, suggests that A-statements have a role in human life which B-statements cannot fulfil.

2.5.1.2 The token-reflexive version

The token-reflexive version of the old B-theory of language attempted to avoid the mistakes of the date-sentence version. This account originated with Hans Reichenbach, but was also developed by J.J.C. Smart. According to Reichenbach's token-reflexive version, tensed sentences can be translated into tenseless ones without loss of meaning, by adding expressions that refer to the sentence-token *itself*. The type of words and expression that Reichenbach calls 'token-reflexive' includes any indexicals, or demonstratives, or tensed verbs that refer to their respective tokens used in sentences. The idea is that when these words are used in sentences, they involve a relation between their respective tokens and the referent. For example, the word 'today' means the same thing as 'the day when this token is uttered'. 'I' means the same thing as 'the person who utters this token', and 'here' means the same thing as 'the place where this token is uttered'.[121] Thus according to the token-reflexive version, the tensed sentence 'Mrs Brown is not at home' can be translated without loss of meaning into the tenseless sentence 'Mrs Brown is not at home on the day when this token is uttered'.

Reichenbach claims that the demonstrative expression 'this token' must be analysed metalinguistically. This is to avoid a vicious infinite regress, in which 'this token' would mean 'the token indicated by this token', and so on. Reichenbach proposes the name Ø as the name of any specific token. Thus, 'this token' does not mean 'the token indicated by this token'; rather it means 'the token indicated by Ø'. Here 'Ø' is *not* a token-reflexive expression, so it does not refer to the sentence in

[121] See Craig (2000a), p. 52.

which *it* occurs, but rather to the original sentence in which 'this token' occurs. In this way, indexicals such as 'now' and 'here' can be translated to mean 'the time *t* when Ø was spoken' or 'the place where Ø was spoken'. So according to Reichenbach's token-reflexive account, the tensed sentence 'Mrs Brown is not at home' is translated into the tenseless sentence 'Mrs Brown is not a home on the day when this sentence is uttered'. However, this tenseless sentence is then analysed metalinguistically, as 'Mrs Brown is not at home on the day when Ø' is uttered.'

However, the token–reflexive account has similar problems to the date-sentence version, which have to do with a loss of meaning. Again, suppose that someone wants to visit Mrs Brown. Given the token-reflexive translation, they still need to know the time to which the phrase 'when this sentence is uttered' refers. Knowing that 'the day when this sentence is uttered' means 'the day when Ø is uttered' gives no useful information. Smart suggests a simpler token-reflexive analysis than Reichenbach's. Smart suggests that 'this token' is analysed in terms of temporal expressions or indexicals. But this account also runs into difficulties. First, it suggests that present tense 'this' introduces a hidden description of time, so it is not clear that the translation *is* tenseless. It also implies that both tensed and tenseless utterances cannot mean the same thing, as they will always refer to different utterances. So the token-reflexive version of the old B-theory is considered unsuccessful.

2.5.2 The new B-Theory of Time

Proponents of the new B-theory of time accept that tensed sentences cannot be translated into (or analysed in terms of) tenseless sentences without loss of meaning.[122] However, in the case of tensed sentences, these philosophers divide the semantic value of such sentences into two elements. One element is the eternal proposition that a tensed sentence expresses, which is something that cannot vary in truth-value. This is sometimes called the 'official contents' of the proposition. The second element is the 'content-like' semantic value. This is what is captured by the way a tensed sentence is presented, and is sometimes called its 'mode of presentation'. Proponents of this view, known as soft detensers, include David Kaplan, John Perry, and Robert Stalnaker. As Dean Zimmerman explains, soft detensers use this second kind of 'content' (or mode of presentation) to explain two

[122] This is sometimes referred to as 'the new tenseless theory of time'.

things. First, it explains the 'intuitive differences in belief-states reported by tensed and tenseless sentences', and secondly, it explains 'the intuitive similarities in belief-states that have different truth-values merely because they are reported at different times.' [123]

For example, consider again the tensed sentence 'Mrs Brown is not at home' reported on May 8, 1906. According to soft-detensers, the 'official contents' of what is reported is the eternal proposition that Mrs Brown is not at home on May 8, 1906. However, what this eternal proposition does not capture is the second type of semantic value associated with the tensed 'mode of presentation'; namely, the belief that Mrs Brown is not at home *now*. Soft detensers claim that by recognizing this second type of semantic value, we can explain the intuitive *difference* between the belief-states reported by the tensed sentence 'Mrs Brown is not at home', and the tenseless sentence 'Mrs Brown is not at home on May 8, 1906'. They also claim that this 'content-like' semantic value explains the intuitive *similarities* in belief-states associated with distinct utterances of the tensed sentence 'Mrs Brown is not at home', although these sentences can have different truth-values because they are uttered on different days. That is to say, they will correspond to different 'official contents'; namely, distinct eternal propositions. In this way, soft-detensers allow that while the date-sentence and token-reflexive accounts described above provide eternal propositions as the 'official contents' of tensed sentences, we can nevertheless explain the intuitive differences between tensed and tenseless sentences.

However, other B-theorists who are 'serious tensers' reject the soft detenser's idea that the semantic value of tensed expressions can be divided into two separate elements. Such B-theorists include David Lewis and D.H. Mellor. [124] These philosophers accept that tensed sentences cannot be reduced to tenseless sentences without loss of meaning. Thus for them, what a tensed sentence expresses *cannot* be an eternal proposition. They therefore hold that what a tensed sentence, such as 'Mrs Brown is not at home', expresses is a non-eternal proposition, which can vary in truth-value. [125] As B-theorists who are serious tensers hold that there can be non-eternal propositions, as well as eternal

[123] Zimmerman (2005), p. 411.
[124] Lewis takes properties rather than propositions as the objects of attitudes.
[125] Or, there is only one object of the propositional attitude reported by these words; namely, a non-eternal proposition.

propositions, we see here that the debate between the A-theory and the B-theory is a distinct debate from the debate about taking tense seriously. This is why the terms 'A-theory' and 'B-theory' are not equivalent to the terms 'tensed theory of time' and 'tenseless theory of time' (respectively), and it is also why Mellor prefers the labels 'A-propositions' and 'B-propositions' instead of 'tensed propositions' and 'tenseless propositions'. However, while B-theorists who take tense seriously and A-theorists both agree that tensed- or A-propositions are ineliminable, their reasons for doing so are very different.

A-theorists claim that A-propositions are ineliminable because one time is privileged over other times: namely, the present. They therefore hold that A-propositions are made true by *tensed facts*;[126] that is to say, facts about how the world *was*, *is*, or *will be*, which cannot be reduced to tenseless 'B-facts'. B-theorists who are serious about tense disagree. For them, A-propositions are ineliminable because much of what we think and say is *perspectival*. That is to say, only tensed propositions can capture what is expressed by perspectival tensed sentences and thoughts. According to these B-theorists, as such thoughts are *merely* perspectival, this does not mean that A-propositions are made true by tensed- or A-facts, or that there are any A-properties in reality. Instead, they claim that A-propositions are made true by B-facts; that is to say, tenseless facts about how reality is 'in itself'. These are facts about how reality is independently of the particular perspective of creatures embedded within time. These B-theorists therefore disagree with Dummett's claim that there cannot be a complete description of reality from outside of time. For them, as all the facts that make A-propositions true are B-facts, there *can* be a complete description of reality that does not involve tensed facts. As a complete description of reality consisting of only tenseless facts is all the B-theorist needs to account for change, and hence time, these B-theorists claim to have a legitimate response to McTaggart. To explain this in more detail, let us consider Mellor's indexical account of the B-theory.

2.5.2.1 Mellor's indexical B-theory

In *Real Time II*, Mellor explains what he takes 'taking tense seriously' to mean. He says that although *in reality* there is no such thing as past, present and future, this

[126] So the A-theorist is distinguishing between facts and propositions. That is, they are not holding Lewis' view that facts just are true propositions (since, *p* does not make itself true).

does not mean that it is never true to call an event *e* past, present or future.[127] The important question for Mellor is: what makes statements such as '*e* is past' true? Mellor denies that there are such things as A-properties; properties that make statements such as '*e* is past', '*e* is present' and '*e* is future' true. This is because he agrees with McTaggart that such statements cannot consistently be made true, because they will involve an event *e*'s having incompatible properties.[128] Instead, Mellor says that what makes statements such as '*e* is past' true at any time *t* is the fact that *e* is earlier-than *t*. Similarly, what makes '*e* is present' true at any time *t* is *e*'s being located-at *t*; and '*e* is future' is made true at any time *t* by *e*'s being later-than *t*.[129] So according to Mellor, although we obviously use A-theoretic terms when we express some true statements, the truthmakers for A-statements are given by the terms of the B-theory.

Mellor does not, however, endorse either the date-sentence version or the token-reflexive version of the old B-theory of language. Regarding the date-sentence version, Mellor accepts that A-statements cannot be translated into B-statements, without loss of meaning.[130] For example, he says that an A-statement, such as '*e* is past' (said at *t*) cannot *mean* the same as the B-statement '*e* is earlier than *t*'. This is because the B-statement (if true) is *always* true, whereas the A-statement is only true *after* event *e*. Thus, if one statement can be true when the other is false, this shows they *cannot* mean the same thing. Mellor explains that he used to defend a token-reflexive view, in which (what he calls) an A-proposition, such as 'e is present' was true at a B-time *t*, if and only if a token of it (such as someone's belief or a statement of it) would be true at *t*.[131] However, Mellor says that this account 'cannot cope with propositions like "there are no tokens now" which can be true even though they have no true tokens'. As we shall see, Mellor seeks to remedy this token-reflexive account with an indexical account, in which the truth-values of A-propositions concerning events located at times are indexed to B-times.[132]

Thus, instead of trying to get rid of A-statements, or give them tenseless truth-conditions, and eternal propositions as their meanings, Mellor takes A-statements

---

[127] Mellor takes it as obvious that we make such statements and says it would be absurd to deny this. Mellor (1998), p.2.
[128] We need not consider Mellor's reconstruction of McTaggart's argument here.
[129] Ibid.
[130] The objection being that as tensed statements cannot be reduced to tenseless ones, only tensed statements can capture the changing nature of reality, which itself is tensed.
[131] Ibid., p.xi
[132] Mellor (1998) p. xii.

seriously. He says that we need the A-beliefs that such statements express, in order to know how to act in time. For example, suppose that in March I am invited to a wedding on 20 June. My B-belief about the date of the wedding does not change, but my A-beliefs do. That is to say, my A-beliefs change successively, as the belief that the wedding is in three months, is replaced by a series of beliefs, such as that the wedding is in two months, two weeks, two days, and so on. Moreover, it is only the A-belief that it is *now* 20 June that makes me go to the wedding. Thus, Mellor says that it is only our transitory A-beliefs that cause us to act. However, for Mellor, although these changing A-beliefs are real changes, they are *not* changes that take place in events. Rather, they are a series of changes taking place *in us*. Mellor says that this psychological experience of A-beliefs changing is what gives rise to the 'A-theorist's myth of the flow of time'.[133]

Mellor explains that we confuse what we observe with our experience of observing it. This is why we mistake our experience of successive A-beliefs as evidence for the reality of A-properties and the passage of time. Mellor says that *how* we observe events (that is to say, as a series of A-times orientated by the present), does not mean that there *is* a special time 'the present' on which all knowledge of other events depends. He explains that we can observe the time order of events, independently of our experience (and hence of their A-times), and he takes this to show that the B-time scale is independent of the A-time scale.[134] For example, he says that seeing time-order is easy, as we can see it in anything that moves. Thus, to see the second-hand of a clock moving clockwise is to see it pass 1 before it passes 2. And to see it moving anti-clockwise would be to see the second-hand pass 1 later than it passed 2.[135] Mellor says that in general, any kind of observable change involves seeing one event either later or earlier than another event. However, this is not to say that the A-series can be reduced to the B-series. Rather it is to point towards the B-theorist's claim (which Mellor admits needs to be argued for) that there is no extra fact about the world, over and above the B-times of events, such that a B-time *is* present.[136]

[133] Mellor, Ibid. p.4.
[134] Ibid., p.15.
[135] Ibid.
[136] Ibid.

Mellor's argument for this begins with a distinction between A-facts and B-facts.[137] A-facts are contingent facts about the A-times of events and of B-times. For example, it is a contingent fact that as I write, the Rio Olympics is future, and July 2016 is future. Both these A-facts entail B-facts; that the Rio Olympics and that July 2016 occur later-than me writing these words. In contrast, B-facts are facts that do not entail any A-facts. Some B-facts are necessary truths, such as 2 + 2 = 4; others are contingent truths, such as the fact that the Rio Olympics takes place later than the London Olympics. The important difference is that whereas A-facts can alter over time, because they obtain at some times and not at others, B-facts do not alter over time.[138] Mellor also distinguishes between A-propositions and B-propositions. Mellor explains that the concept of truth applies to beliefs, statements of belief, sentences expressing beliefs, and to their contents, which he calls 'propositions.'[139] He says that he assumes that 'propositions are what sentences expressing beliefs mean.'[140] Thus an A-belief expresses an A-proposition, and a B-belief expresses a B-proposition. Ultimately, what Mellor wants to show is that are no A-facts, and thus that what makes our A-beliefs true are B-facts. In order to do this, he has to show that B-facts give A-beliefs or A-propositions their truth-values. He admits that the difficulty here is explaining *how* they can do this, given that B-facts do not vary, whereas A-propositions do vary in truth-value.

The types of facts that Mellor is concerned with here are truthmakers.[141] And the issue he sees for the B-theorist is that some A-propositions are only true when their A-truthmakers exist. Mellor explains:

> If Jim races only on 2 June, the A-proposition 'Jim races tomorrow' is true only on 1 June, which is when its A-truthmaker (that Jim races tomorrow) exists. But unlike this A-fact, the B-fact that Jim races on 2 June is always a fact, as I say all B-facts are. How then can such facts make propositions

[137] Note: Despite making this distinction, Mellor will ultimately argue that *there are no A-facts*.
[138] Mellor allows one way in which B-facts could vary. For example, a B-fact could be contingent at one time and necessary at a later time. Thus he allows that B-possibilities can change, whereas B-actualities cannot.
[139] Ibid., p.23
[140] Ibid.
[141] For Mellor truthmakers or 'truthmaking facts' are states of affairs, which have the property of obtaining. Truthmaking facts are what makes truth-bearers (beliefs, statements, sentences, or propositions) true when they are true. (Ibid., p.24.)

> true at some times and false at others, as most A-propositions are? That is the question we need to answer.[142]

To show how unchanging B-facts can be the truthmakers for A-propositions, which vary in truth-value, Mellor makes a distinction between types and tokens. A type is something that can have many tokens. For example, the word *cat* is a type, and like all words it is not a concrete object, but something abstract. However, when I write or say 'cat' 'cat' 'cat' I produce three concrete instances or tokens of the same type (the type of word *cat*). So a token is a particular instance of a type. The type-token distinction also applies to sentences, statements and beliefs. Thus, when I say 'the cat purrs' and you say 'the cat purrs', we utter two token sentences of the same sentence-type.

Mellor then uses this type-token distinction to argue that tokens of tensed sentences are made true by B-facts. First, Mellor says that because his future-belief that Jim races tomorrow can be shared by others, the belief is a type, whose tokens are his belief, Jim's belief, and the belief of anyone else who believes that Jim races tomorrow. However, Mellor says that *these* belief-tokens are not the tokens we need, as these future beliefs can (rightly) be held by someone at one time and not at another.[143] Instead, he says that the tokens we need are *people believing things at given moments*. For example, Mellor believing at noon on 1 June that Jim races tomorrow is one such token, and Mellor believing the same thing at 4pm is another token. These are belief-tokens that can *only* be held by a particular person at one particular time.

Mellor then says the following:

> This makes the belief-tokens we need facts: my believing a proposition 'P' at a given A- or B-moment *t*. And if it is a B-moment, then even if 'P' is an A-proposition, my believing it at *t* is a B-fact, entailing nothing about how much earlier or later anything is than the present. Thus my believing at any B-moment of 1 June that Jim races tomorrow is a B-fact, entailing nothing about the A-time of Jim's race, 1 June or anything else.[144]

---

[142] Ibid. p. 30.
[143] Mellor does not want tokens to be beliefs that X holds at one time and not at another. This would make such beliefs A-tokens, which is not what he wants.
[144] Ibid. p.29.

So a belief-token involves a person X believing a proposition P at time *t*. For Mellor, this means that belief-tokens are facts. And when the time in question is a B-time (or B-moment), X believing P at *t*, is a B-fact. If belief-tokens of belief types, such as 'Jim races tomorrow' can be B-facts, then according to Mellor, this shows that B-facts can be tokens of A-propositions.

Mellor says that the same applies to all other propositional attitudes to A-propositions, including knowledge, doubt, hope and so on. For example, he says:

> For even if I *know* on 1 June that Jim races tomorrow, which does entail that he races then, this token-knowledge is still not an A-fact. For first, all it entails is that my belief that Jim races tomorrow is true, not that what makes it true is an A-fact, which is the point at issue. And second, my knowing on 1 June that Jim races tomorrow entails only the B-fact that he races on 2 June. It does not entail the A-fact that he races tomorrow, for it does not entail that 1 June is today.

The propositional attitudes mentioned above are mental tokens of propositions. Mellor then considers the case of statements. Mellor says that to avoid begging the question against the A-theory, he says that he will assume that we can make both A-statements and B-statements.[145] He thus says 'to every possible belief-type; i.e. to every proposition, there corresponds a statement-type.' Mellor says that he will refer to statement-types as 'propositions' and reserve the word 'statement' for written or spoken tokens of propositions.[146] Mellor explains that with inscribed statements, as with beliefs, the tokens we need are not what is inscribed, for example, a sign saying 'back in two hours', but rather signs bearing such inscriptions *at particular times*. In the case of spoken statements, the token utterance may only exist for such a short time, such that there is only one token of that proposition. Mellor says that even in this case, the utterance has a B-time on which its truth-value depends. For example, if at noon, someone utters 'back in two hours', and then returns one hour later, the token-utterance will be false. What makes this utterance false is a B-time; namely that noon is one hour earlier than the

[145] Mellor's concern is that taking it that the sentence 'Jim races tomorrow' can make *different* statements on different days, assumes that those statements are B-statements. If the sentence 'Jim races tomorrow' made an A-statement, the *same* statement could be true on different days.
[146] Ibid. p. 30.

time at which the speaker returns. Mellor therefore says that 'all tokens of any A-proposition 'P' for which we need B-truthmakers have B-times which (given 'P') fix their truth of falsity in any given world.'[147]

Mellor then considers whether these B-facts (facts about the B-times at which tokens occur) provide all the B-truthmakers we need for A-propositions that have variable truth-values. This is where he attempts to remedy the weakness of the token-reflexive theory. Mellor says that on the token-reflexive theory, for any token of an A-proposition 'P' about an event *e*:

> Any token of 'P' will only be true if and only if it is as much earlier or later than *e* as 'P' says the present is than *e*.

And similarly, if 'P' says that e is present, its tokens are true iff they are simultaneous with *e*.[148] However, Mellor acknowledges that this token-reflexive account will not work for tokens such as 'there are no tokens now'. He argues that this is an equal problem for the A-theorist, who tries to provide token-reflexive truthmakers for such statements. Mellor proposes amending his account in the following way. He says that if we allow that a time *t* can be either an A- or B-time, we can replace the token-reflexive account above with an indexed theory. For example:

> Any A-proposition 'P' about any event *e* is made true at any *t* by *t*'s being as much earlier or later than *e* as P says the present is than *e*.[149]

Mellor says this now gives 'there are no tokens now' the right truth-value at all times. This is because it is a fact about *t* itself; namely, that there are no tokens at *t*. He says what this indexical account shows is that we can provide B-facts that will give any A-propositions the right truth-value at any time. However, what it does not show is that there are no A-facts. That is to say, it does not show that nothing in reality is past, present or future. This is the issue that Mellor now turns to.

Mellor's argument against the non-existence of A-facts builds over four chapters, which contain much ground clearing. Part of this involves arguing that the presence

---

[147] Ibid. p. 31.
[148] Ibid.
[149] Ibid., p. 34

of experience can be explained away, by distinguishing our experiences from our *now*-beliefs about those experiences.[150] However, his argument against the existence of A-facts is finally established by his consideration of McTaggart's argument. There, Mellor claims that the A-theorist has no way to escape the vicious regress generated by McTaggart's paradox. This is because we can never give consistent A-theoretic or A-truth-conditions for any sentence in the sequence '*e* is past' or '*e* is now past' or '*e* is now, now, past' and so on. Mellor says:

> It is no use saying at any stage that the latest sentence is true *now*, since whether that is so depends on saying when *now* is. And that generates the next sentence in the regress, about which the same question arises. To give a final answer at any stage just produces a contradiction, since, if the sentence is true (at some present time) it is also false (at some other). The only way to avoid contradiction is to never stop at all, thus admitting that the original sentence '*e* is past' has no A-truth-conditions. But this is to say that no A-fact, and in particular not the fact that *e* is past, makes '*e* is past' true. In short, A-facts are either self-contradictory or incapable of making A-sentences true or false. Yet this is what they are defined to do. So either way, they do not exist.

Mellor then presents the argument in terms of truthmakers.[151] He says that according to A-theorists, A-facts are meant to provide single truthmakers for A-propositions. For example, what is expressed by the tensed sentence '*e* is past', is meant to be made true by the single A-fact that *e* is past. This means its A-truth-condition is always that *e* is past. In contrast, Mellor points out that the B-truth-conditions of '*e* is past' vary from time to time. For example, for any event *e* (such as Jim's race on 2 June), '*e* is past' is true at all B-times later-than *e* (after Jim has raced) and false at all other times. Thus, he says that if the A-fact that *e* is past is to be the truthmaker for '*e* is past', this A-fact must exist at all times later than *e*.[152] Moreover, he says that when this A-fact exists, it will not only make the *A-proposition* that event *e* is past, true, but also all its tokens. This, in turn, requires that all the tokens of '*e* is past' must have the same truth-value *at any one time*; for example, true at all times after *e* and false at all other times.

---

[150] For example, Mellor argues that our experiences, like other events, are neither past, present, or future. However, that we have now-beliefs about them is necessary. Mellor, *ibid*., p. 45.
[151] See again footnote 141 on truthmaking facts.
[152] Ibid., p. 78.

Mellor explains the problem he sees with this is as follows. He imagines the scenario where on 2 June, unknown to him, the time of Jim's race is postponed from 2.30 – 4.30. He also imagines that at 3.30 and at 5.30 he says '*e* is past'. Then at 3.30 Mellor's token utterance (*a*) of '*e* is past' will be false, but at 5.30, his token utterance (*b*) of 'e is past' will be true.[153] He says that if these two tokens (a) and (b) are made true by the A-fact that *e* is past, then 'they must both be true when it *is* a fact and false when it is not.' This means that at 4pm, when event *e* is future, both (a) and (b) must be false, but at 5pm, they must both be true.

Mellor says that the problem here is that this is wrong. This is because before the race, token (a) is false and will always be false, whereas after the race, token (b) is true and is always true. Hence Mellor says:

> Once we distinguish propositions from their tokens, it is obvious that tokens of A-propositions, unlike the proposition itself, do *not* change their truth-values over time.[154]

Mellor says that the truth-value of a token utterance of a proposition 'P' at any time is not *just* the truth-value P has at that time. This is because A-propositions *vary* in their truth-value. (For example, the proposition that *e* is past is true at some times and false at others.) Thus, any token that did not share its truth-value *at all times* would have to be both true and false. Mellor says that expressed in this way, McTaggart's contradiction 'allows no regress and no riposte'.[155] Mellor, therefore, says that to suggest that propositions can differ in truth-value from their tokens is wrong. Moreover, he says that anyone who tries to claim that an A-token's own temporal location is not what makes it true or false, has not grasped the distinction between a proposition and its token.

The solution, Mellor concludes, is to admit that tokens of '*e* is past', such as (a) and (b), can have different truth-values at a given time. And this involves accepting that they cannot be made true at that time by any single fact. He considers whether the A-theorist can accept this. He says that it might seem that they can. For example, at 6pm on 2 June, when Jim's race *e* is now past, the single A-fact that *e* is past,

---

[153] We are assuming here that Jim's race is less than thirty minutes in duration.
[154] Ibid.
[155] Ibid., p.79.

cannot make token (a) true.[156] Here it seems that the A-fact that makes (a) false is that (a) is more past than *e*, and similarly, the A-fact that makes (b) true is that *e* is less past than *e*. However, Mellor says that the problem here for the A-theorist is that while these truthmakers are fine, they are B-facts not A-facts. This is because 'what makes events past at any A- or B-time is that they are earlier than *t*, and what makes them future is that they are later then *t*.'[157] Mellor says that in both cases, the A- and B-times cancel out, such that A-tokens cannot change in truth-value. Mellor says that any apparent A-truthmaker for an A-token, such as 'e is past' reduces to the B-truthmaker that the token be later-than *e*. He therefore concludes that in reality, there are no tensed facts.

We revisit this issue of the reality (or otherwise) of tensed- or A-facts in the next chapter, when we consider arguments for the various A-theoretic metaphysical theories of time. Hence we shall consider the A-theoretic responses to Mellor's argument against the reality of tensed facts there. For now, we can see that B-theorists have ways to support their claim that reality is tenseless, because reality consists of a totality of tenseless- or B-facts. As a response to McTaggart, the B-theorist can use this claim to argue that the B-theory provides an adequate account of change, and hence is sufficient for the reality of time. In the next chapter, we examine the various B-theoretic accounts of change, and consider whether they do provide a satisfactory account of change. If they do not, then it seems that the tenseless facts do not describe or account for everything that we need to account for in reality.

2.6 Conclusion

In this chapter, we have considered McTaggart's argument for the unreality of time, and some of the A-theoretic and B-theoretic responses to that argument. The purpose of this was to prepare some of the essential background to the rest of the thesis. The debate between presentists and non-presentists is centred on what it takes to provide adequate accounts of change and the passage of time, what type of metaphysical and ontological picture of reality can successfully do this – and whether these pictures of reality are defensible.

---

[156] As tokens, unlike propositions, cannot change their truth-value.
[157] Ibid., p. 80

Chapter 3. Alternatives to presentism

3.1 Introduction

In Chapter One, we said that the different metaphysical theories of time are all fighting over the same ground; each claiming to provide a more accurate account of the nature of temporal reality, and what it is to exist at a time, than its rivals. The purpose of this chapter is to explain how the various non-presentist theories of time claim to do this.[1] This involves explaining what these theories are, what motivates them, and what their ontological commitments are. In particular, we explain how the various non-presentist theories develop distinct ways to account for the issues raised by McTaggart's paradox. This includes questions about the nature of change, the reality (or otherwise) of tense and tensed truths, and temporal passage, and questions about the types of properties instantiated by existing entities at different times. In this respect, this chapter continues the discussion of the previous chapter, as it explains how the various A-theoretic and B-theoretic responses to McTaggart are incorporated into distinct metaphysical theories of time. As previously mentioned, the reason for discussing these non-presentist theories, before discussing presentism, is that presentism is best understood in terms of what it won't accept. So to properly understand what presentism is, and what presentists and non-presentists disagree about, it is necessary to see what these non-presentist theories affirm. We also briefly consider a third type of response to McTaggart; namely, accepting McTaggart's conclusion that time is unreal. Theories of timelessness claim that we mistake certain features of reality as temporal features, when in fact they are not.

By the end of this chapter we will have mapped out a framework of the various metaphysical theories of time. This framework will enable us to understand what the major debates in the metaphysics of time are really about, so that we will be able to understand the place of presentism in them. (We focus on the claims that divide presentists from non-presentists in the next chapter.) For example, it will enable us to see which claims unite all A-theorists against B-theorists; namely, claims about dynamism, and how to understand change, and which claims divide the various A-theorists from one another; namely, different ontological claims about

[1] Non-presentist theories include: theories of timelessness; eternalism (including the B-theorist's Block Universe, and A-theoretic versions of eternalism); semi-eternalism (including the Growing Block and the Shrinking Tree); and Fine's non-standard realism about tense.

what exists, and different ways to account for dynamism. Understanding these issues will not only be important for understanding what presentism is, and what its commitments are; it will also be important when it comes to evaluating presentism. This is because it will help us to see the costs and benefits of the different versions of presentism in relation to the costs and benefits of rival theories.

As we shall see, both in this chapter and the next, some of the differences between these theories rest on quite nuanced understandings of what it is to 'exist at a time'. The majority of A- and B-theorists (including most presentists) are 'neo-Quineans', as they do not believe that existence claims are ambiguous. This is because they accept the Quinean assumption that there is only one type of existence.[2] This is the unique type of existence that is properly expressed by quantifiers and identity relations. Hence Quine's mottos 'to be is to be the value of a (bound) variable'. And 'no entity without identity.' (So on this view, existence is not a monadic property, which some objects have and others lack.) However, non-presentist A-theorists often stretch this 'univocal' sense of existence to its limits, in order to provide dynamic accounts of change, or to explain the passage of time.

For example, as eternalist A-theorists hold that all times and their contents exist on a par (i.e. are all equally real), they have to provide dynamic accounts of change, which involve *non-ontological* distinctions between different times and their contents. (These A-theorists do not want to reduce properties to relations to times, or describe property change in terms of objects having a series of distinct temporal parts. This is because these accounts are held to merely describe variation.) Hence, some eternalist A-theorists claim that enduring objects only have *concrete* properties temporarily; that is, when they are present.[3] A consequence of this view is that enduring objects *lack* concrete properties, such as having a spatiotemporal location, or being alive, when they exist at other times. Similarly, in his non-standard moving spotlight theory (explained below), Ross Cameron claims that every past, present, and future entity exists, and is *now* a certain way *simpliciter*. A consequence of Cameron's view is that merely past individuals, such as Queen Victoria, have their essential properties, such as being concrete, and being human, but lack non-essential properties, like height, mass or three-dimensional shape. And similarly for

[2] This unique sense of existence is captured by the unrestricted existential quantifier. On this view existence and quantification go hand in hand, as what there is exactly equals what exists.
[3] This is Meghan Sullivan's version of 'Williamsonian Presentism'. On this view non-present objects exist, but are merely logical existents. (Sullivan distinguishes her eternalist A-theory from the moving spotlight theory.)

merely future individuals. However, in cases where temporary properties, such as being non-concrete, or being not-yet-alive, or no-longer-having a shape, are ascribed to permanently existing objects, it might be argued that this 'univocal' notion of existence becomes quite strained, as these are very metaphysically 'thin' ways of existing.[4]

Non-eternalist A-theoretic accounts of change rest on *ontological* claims; by which I mean, a change in what exists. This is because non-eternalists hold that some objects only exist temporarily. (For growing blockers, some objects have not always existed; and for presentists, some objects have not always existed and some objects will not always exist.) However, when it comes to explaining how non-existent future objects *will be*, or, in the case of presentism, how non-existent past and future objects *were* and *will be*, non-eternalists use Priorian tense operators to block unwanted ontological commitment to non-existent entities.[5] (I am specifically talking about non-eternalists who accept the Quinean assumption that there is only one type of existence.) The claim is that tense operators, such as *F* and *P*, enable non-eternalists to make true claims about non-existent entities, without saying that there *is* (exists) some thing now, such that *that thing* has the property of being (in the future) the first Martian outpost, or such that *that thing* has the property of having been a dinosaur.[6] While this strategy is said to avoid quantifying over non-existent objects, some eternalists challenge the claim that tense operators block unwanted ontological commitment, and therefore question whether tense operators are really compatible with temporary existence.[7] We return to these issues below and in chapter 4.

Some other 'more permissive' types of presentists distinguish between the *concrete* present time and abstract non-present times. (These presentists also accept the Quinean assumption that there is only one type of existence.) Here, these non-present times are understood as *abstract* times that presently exist, or ersatz B-times. These presentists do not appeal to tense operators, but rather quantify over abstract (non-present) times *in the object language*. As these presentists hold that

[4] It is open to the eternalist A-theorist to reply that this is all she needs for her account of change.
[5] The growing blocker does not need to block ontological commitment to past objects. And the ersatzer presentist does not employ tense operators.
[6] In Prior's temporal logic, the formal language of predicate logic with primitive tense operators is used to show what the real ontological commitments are of the natural language statements. The claim is that primitive tense operators enable certain A-theorists to represent what is said without quantifying over non-existent entities.
[7] For example, Sullivan (2016) p.12.

the present time and non-present times exist in very different ways, we might also wonder whether they are helping themselves to a liberal understanding of what is involved in the notion of univocal existence. We might also question whether presentists should accept such quantification over non-present times in their fundamental explanation of how presently existing concrete objects change.[8]

We shall also see how B-theoretic accounts of change challenge our ordinary notions of what it is to exist at a time and persist through time. This is because B-theoretic accounts of change typically either involve an ontology of temporal parts, or they explain existence in terms of individuals being three-dimensional wholes, which only have properties as relations to times, and hence lack intrinsic properties. Such views involve strange accounts of both existence and change. Mellor is a B-theorist who denies that these B-theoretic accounts provide satisfactory accounts of change. Instead, Mellor provides a B-theoretic account of change, which allows that individuals persist by enduring. (We examine this account, and the problems with it, below.) In contrast to both A-and B-theories, theories of timelessness have no need to explain change (as they deny that reality changes). However, their challenge is to explain why reality *appears* to change, if in fact it does not.

3.2 Outline of the Chapter

This chapter has two main parts. In Part One we consider eternalism and the B-theory. Here, we begin a general introduction to eternalism, and distinguish B-theoretic eternalism from A-theoretic eternalism. Next we consider some motivations for B-theoretic eternalism. Finally we consider various B-theoretic accounts of change and temporal passage. In this section we consider the problem of temporary intrinsics, and explain the various B-theoretic responses to that problem. These include relational accounts of change, the temporal parts account of change, Mellor's combination of endurantism and the B-theory, and Oaklander's R-theory.

In Part Two we consider non-presentist A-theories. As these A-theories form a much larger and diverse group than B-theoretic positions, we consider these in three separate sections. First we discuss eternalist A-theories. Here we consider the standard moving spotlight theory (this includes Brad Skow's defense of the

[8] For example, we might think that it is strange to say that a concrete object (such as oneself) can undergo a change from sitting to standing, merely in relation to an abstract object.

theory, and Oliver Pooley's response to Skow); Ross Cameron's non-standard moving spotlight theory; Meghan Sullivan's version of 'Williamsonian presentism'; and Quentin Smith's 'degree presentism'.[9] Next we discuss different versions of semi-eternalism, including the growing block theory and Storrs McCall's 'shrinking tree'. Finally we consider Kit Fine's non-standard realism about tense (fragmentalism and external relativism), and Fine's claim that standard A-theories cannot account for change and passage. As was outlined in Chapter 2, Fine claims that a complete description of reality cannot be had, because *reality itself* consists of fragmented and incompatible temporal perspectives. So according to Fine, it is not the case that that there is one absolute truth about how things are.[10]

3.3 A note about theories of timelessness

It is beyond the scope of this thesis to discuss theories of timelessness in detail. However, before we consider the various A- and B-theories of time, I want to very briefly say something about theories of timelessness. The claim that time is unreal is obviously the most radical option in the metaphysics of time. On this view, all our common sense ideas about time are mistaken. A timeless reality is one in which there is no change, no temporal succession, no distinction between times, and no duration. While no one can sensibly deny the *appearance* of such things, those who hold that reality is timeless claim that such appearances lead us into error. That is to say, we *misperceive* certain features of reality as temporal when they are not. Hence, arguments for timelessness take the gap between appearance and reality to be highly significant.

There are various arguments for timelessness, and we have already considered one of these; namely, McTaggart's argument for the unreality of time. But we have not said anything about how McTaggart interprets his own conclusion. Like most arguments for timelessness, McTaggart argues for an idealist conclusion, in which reality is immaterial. According to McTaggart, this timeless reality consists of

---

[9] 'Williamsonian presentism' is sometimes called a version of the moving spotlight theory (see Zimmerman 2009, Deasy 2014). Following Sullivan (2012) I do not describe it in these terms. Sullivan distinguishes her 'Williamsonian' view from the spotlight, because the spotlighter claims that non-present entities are concrete, whereas Sullivan claims that they are non-concrete. I also discuss Quentin Smith's 'degree presentism' as an alternative to the moving spotlight view.

[10] Fine denies that the only options are the B-theorist's 'view from nowhere', which takes the tenseless description to be the absolute truths, and the standard A-theorist's 'view from within time', which takes the absolute description be to tensed.

multiple perceiving subjects ('spiritual substances' or persons), and the relations between them. As no matter or sense data exists in reality, McTaggart says that each perceiving subject directly perceives the whole of this spiritual reality through *introspection*. This direct perception of the whole of reality includes our perception of ourselves and other perceivers, and the relations between ourselves and other perceivers. Moreover, McTaggart holds that all spiritual persons have parts, which are also substances with parts; thus each person's direct perception is infinitely differentiated into detailed parts within parts. These direct perceptions consist of the relations inclusive-of and included-in.

McTaggart claims that each individual's direct perception of reality is clear and distinct, and hence it cannot be in error. Nevertheless, he presents a complicated argument to show that perceivers *misperceive* aspects of this reality *as temporal*. For example, he says that while the content of a person forms one inclusive system of coexisting states, nevertheless contained within this system are *fragmentary perceptions* of the very same objects already perceived. These fragmentary perceptions do not add new content to what is already perceived, but McTaggart says that they explain the source of our misperceptions; this is because we *misperceive* these fragmentary perceptions as *temporal* perceptions. He calls this series of perceptions the C-series. However, even if McTaggart's argument for the C-series is coherent, his account faces the same difficulty facing all theories of timelessness. This is the problem of explaining how our 'mistaken' *experience* of the features of reality that we take to be temporal, itself seems to be temporal. This is the greatest challenge facing all arguments for timelessness. We should note that some other arguments for timelessness have even more radical conclusions than McTaggart's. For example, Parmenides argues for a timeless reality in which there can be no distinctions of any sort. Hence, Parmenides' timeless reality consists of a single unity or 'one', in which there are no distinct individuals. Let us now turn to metaphysical theories of *time*, starting with the B-theory.

Part 1 – Eternalism and the B-theory

3.4 Eternalism: a general introduction

The purpose of part one is to focus on B-theoretic accounts of eternalism, and in particular to consider the various B-theoretic accounts of change. However, we begin with a brief introduction to eternalism in general. This provides useful

background for our discussion of the differences between the B- and A-theoretic versions of eternalism; and it also helps us see what distinguishes eternalist theories from non-eternalist theories.

Eternalists hold that all times and their contents exist on a par. On this view, non-present *objects*, such as dinosaurs and (let's assume) Martian outposts are just as real as present objects; non-present *times*, such as the year 1066 and the year 3020, are just as real as the present time; and non-present *events* are just as real as presently occurring events. For eternalists, all times, objects, and events are in the domain of our most unrestricted quantifiers; and because all these entities exist permanently, this domain never varies. Thus in terms of *ontological* commitment, what separates eternalists from semi-eternalists and presentists is a disagreement about what is in the domain of our most unrestricted quantifiers, and whether this domain varies. We can distinguish these *ontological* differences as follows.

- For all eternalists, there is an unvarying domain, consisting of permanent existents (all past, present and future times and their contents).

- For growing blockers, the domain consists of past and present times and their contents, but does not include any future entities. The present is thus the frontier of reality. Entities in the domain are 'permanent' existents in the sense that once they come into existence they never go out of existence. However, strictly speaking they are temporary existents, because there were times when they did not exist, and hence they do not *always* exist. Thus the domain varies because new present moments and their contents are continually added to the block, as they come into existence. So as the block grows, the domain grows, and entities in the domain continually change their A-properties, because they become increasingly more past as the block grows.[11]

- Finally, for presentists who assume the Quinean view that all and only things that there are exist, the domain continually varies, as it only includes the transient present and its contents. Thus, reality consists of temporary existents. However, the neo-Meinongian presentists we meet in chapter 4 deny this. These presentists can say that we have a permanent and fixed

[11] On the shrinking tree model, the domain of possible future branches continually shrinks; as various possible futures cease to exist as each new present becomes fixed.

domain, though things in the domain lack existence when they are past or future, and only have it when they are present.[12]

Although all eternalists agree about their *ontological* commitments (that whatever exists, exists permanently), they disagree about their *metaphysical* commitments concerning the nature of change, temporal passage, and whether reality itself is dynamic. For example, B-theorists deny that reality is dynamic in the following respects. There is no metaphysically privileged present moment, which moves through time; hence, there is no 'genuine' passage of time; and as all truths are ultimately tenseless, there are no transient truths (a truth being a true proposition). For B-theorists, 'temporal becoming' is just explained in terms of an ordered series of successive events, in which there is no moving now. Our intuition that time is flowing is explained in terms of our conscious perception of the present; a perspective from which we remember an apparently increasing amount of information about the past, but have very little information about the future. For the B-theorist, this experience of being located at the present does not correspond to any objective or 'metaphysically privileged' perspective. Rather, it is merely a fact of our psychology that 'whenever' we are located on our particular worldline, we experience that location 'as present'.

For the B-theorist, as there is no objective present, a token of the word 'now' just refers to the time at which it is uttered; much like a token of 'here' refers to the place at which it is uttered. On the standard B-theoretic picture, objects are thought of as four-dimensional things, because they are both spatially and temporally extended. And objects persist or 'perdure' through time by having distinct proper temporal parts at distinct times. Thus, a persisting object is a mereological sum of its temporal parts; for any perduring individual there will be many distinct temporal parts located all along the worldline of that individual, each thinking 'it is now, now'.[13] And as there is no objective present, the apparent asymmetry between the past and future, which also accounts for the direction of time, is typically explained in terms of causation, the initial conditions of the universe, or entropy.

[12] A growing blocker could also take this neo-Meinongian view, and claim that things lack existence when they are future, and only have it when they are past or present.
[13] Not all B-theorist accept perdurantism. For example, Mellor and Simons both argue for a combination of the B-theory and endurantism.

For eternalist B-theorists, in addition to there being no temporary existents, there are no temporary truths. B-theorists are anti-realists about tense and tensed facts; thus, all fundamental facts are tenseless B-facts, and whatever is true is permanently true. On this view, the A-theoretic claim 'the Battle of Hastings is past' is made true by the permanent B-fact that 1066 is earlier than 2016. In addition, B-theorists claim that as there are no fundamental A-properties, the properties ascribed to temporal entities are permanent B-properties. Thus, as an *event*, the Battle of Hastings has the permanent property of happening at 1066; and as a *time*, the year 1066 has the permanent property of being the time when the Battle of Hastings occurs. So on this B-theoretic picture, change is neither explained in terms of a change in existence, nor in terms of a change in what is true, or any kind of A-property change (such as losing the property *being present*, and gaining the property *being past*). Instead all change is explained in terms of some kind of variation in the manifold or spacetime block. Because of this unchanging picture, B-theoretic eternalism is sometimes described as the 'static block'.

While eternalist A-theorists agree that change does not involve a change in what exists, they deny that the B-theorist provides an adequate account of change. According to them, the B-theorist's tenseless picture leaves out an important feature of reality; namely, a description of reality from a metaphysically privileged present moment *within* time.[14] For eternalist A-theorists, the view from this privileged present is not *merely* perspectival. Rather, they claim that an accurate description of reality involves tensed facts and tensed properties, which cannot be reduced to permanent tenseless facts or B-properties. For example, the B-theorist's 'view from nowhen' can tell us the permanent B-fact 'the meeting is on day X', but it cannot tell us the transient A-fact 'the meeting is today'. This is because it cannot tell us that day X has the property of *being today*. According to the eternalist A-theorist, what the permanent B-picture leaves out is precisely what is necessary for a proper account of change. Namely, a description of reality that provides a privileged and changing perspective from *within* time, according to which what is true now, has not always been true, and will not always be true. (For example, the statement 'the Battle of Hastings has ended' is true now, but it has not always been true.) For the eternalist A-theorist, what grounds this change in what is true at different times is not ontological change (a change in what exists). Instead, some truths are transient

[14] All A-theorists hold that the present is metaphysically privileged, but eternalist A-theorists deny that the present is *ontologically* privileged.

because reality itself changes as time passes, and this typically involves objects losing and gaining their A-properties.[15]

3.5 Motivating B-theoretic eternalism

There are various motivations for B-theoretic eternalism. An obvious motivation is the claim that the Special Theory of Relativity (hereafter SR) implies the B-theory. According to standard interpretations of SR, all times exist on a par in the four-dimensional spacetime manifold. Moreover, SR tells us that there is no such thing as absolute simultaneity, and hence that there is no absolute present within the manifold. Instead, 'the present' is merely relative to the subjective viewpoint of an individual observer. This not only means that what is present for one observer may not be present for another observer; it also means that all perspectives are equally valid, and there is no objective *fact* about which time is present. Hence, the use of the temporal indexical 'now' reflects a merely subjective viewpoint, which much like use of the spatial indexical 'here' does not pick out an objectively privileged viewpoint. According to SR, everything that happens in the world can be represented in one static four-dimensional spacetime diagram, in which the set of truths is fixed by the (complete) diagram. SR is therefore obviously compatible with the B-theorist's claim that past, present and future exist on a par in the 'block universe', and that there is no privileged present moment or 'now', which moves through time.

There are also purely metaphysical motivations for B-theoretic eternalism. All of these, in one way or another, relate to the B-theorist's claim that you do not need to invoke tense to give a metaphysically adequate account of reality. The first of these motivations is closely related to the neo-Quinean idea that there are only existent entities. So I shall briefly say something about this, before saying how this idea fits nicely with the B-theory. For Quine, to be is to exist. So Quine takes being or existence to be univocal, in the sense that the only way 'to be' is to be in the sense captured by the existential quantifier ∃. So if *there is* an *x*, then *x* exists. Hence, Quine's slogan, 'to be is to be the value of a (bound) variable'. According to Quine, this provides a principled way of making our ontological commitments clear, as it enables us to give clear *identity conditions* for anything that exists. Moreover, it provides strategies for getting rid of unwanted ontological commitments; including

[15] On the moving spotlight view, the only property objects gain and lose is the property of being under the spotlight.

paraphrasing certain proper names, like 'Pegasus' into definite descriptions, which do not commit us to the existence of whatever such names are supposed to denote.

For Quine, the identity conditions of existing things are spelled out in the following way. First, consider material objects. According to Quine:

- If *a* and *b* are material objects, then *a* and *b* are identical, if and only if, *a* has the same spatiotemporal location as *b*.

Quine claims that this provides a clear way of knowing when to count a material object as one thing, rather than as two things.[16] Quine also accepts the existence of some abstract objects, such as sets. Sets are collections of things; for example, the set of cats is the collection of all and only the things that are cats. And in the case of individuals, such as my cat Wolfgang, the abstract set {Wolfgang} has only one member, namely the concrete individual Wolfgang. So in the case of sets:

- If *a* and *b* are sets, then *a* and *b* are identical if an only if *a* has the same members as *b*.

According to Quine, sets have clear identity conditions, as they are things whose identity is fully determined by their extension; that is, the objects that are their members. So sets are extensional entities. In contrast, intensional entities, which are properties, do not have clear identity conditions. This is because two *distinct* properties can have the *same* extension; so properties are not identical with their extensions in the way that sets are. For example, *cordate* and *renate* are distinct properties, but share the same extension; namely, the set of all animals (as the set of things that have a heart is identical to set of things that have kidneys.) For this reason, Quine does not accept intensional entities like properties into his ontology. (Quine has similar reasons for rejecting merely possible things and fictional things, as they do not have clear identity conditions either.) However, since Quine does not accept properties, existence cannot be a property; instead, existence is expressed by the existential quantifier and the identity relation. Let us now consider how Quineanism favours the B-theory.

[16] Not everyone accepts that a lump of bronze and a statue are one and the same thing, but for Quine they are, as they have exactly the same spatiotemporal location.

Like most A-theorists, the B-theorist accepts the neo-Quinean idea that what exists equals what there is. And like the *eternalist* A-theorist, the B-theorist has within her domain all (so-called) past, present, and future existents. As we have seen, for the B-theorist, the fundamental facts are tenseless facts; facts that are tenselessly true from no particular point within time. So any facts about the world that hold relative to times (such as Socrates was sitting) are ultimately reduced to tenseless facts (such as Socrates sits a *t*).[17] These tenseless facts are permanently true. In contrast, the A-theorist holds that some of the facts are irreducibly tensed. Hence for the A-theorist, the facts about how things *were* or *will be* do not hold relative to times, and cannot be reduced to a tenseless point of view. Rather, they are facts about how things are absolutely; that is, tensed facts are irreducible and irreducibly tensed. Thus for the A-theorist how things are *absolutely* changes, because time passes. Hence the absolute fact 'Socrates is sitting' no longer obtains; instead, what *now* obtains is the absolute fact 'Socrates was sitting.' So the A-theorist holds that tensed facts can go from obtaining to not obtaining or vice versa with the passage of time.

The B-theorist claims that in giving a *tenseless* account of reality, her ontological commitments are more transparent. This is because the B-theorist is able to explain how temporal entities change and how time passes, using a purely extensional first-order logic; such that she can describe how things in the world are at different times, just by using the quantifiers 'some' and 'all'. For example, the B-theorist either adopts an ontology of temporal parts to explain *which* temporal entities she is quantifying over, or she describes the different properties had by a *single* temporal entity as relations to times. Either way, the existential commitments the B-theorist has are transparently shown in this extensional language, as the identity of the entity or entities concerned are clear; and in each case we know how to count the objects in question.[18]

In contrast, the A-theorist claims that because reality is tensed, how things are changes over time, (whereas for the B-theorist, how things are either absolutely or relatively never changes over time). So for the A-theorist, there is a difference

[17] For example, if Socrates sits at t_1 and stands at t_2, then relative to t_2, the fact 'Socrates was sitting' is true. However, for the B-theorist the relative fact 'Socrates was sitting' reduces to the *absolute* tenseless fact 'Socrates sits at *t*.'

[18] Sally Haslanger suggests a different option. She says, the three-dimensionalist can say that roundness is NOT a relation between a penny and a time; rather roundness is a monadic property, but a penny's having roundness is a state of affairs that may obtain or not, where obtaining is a relation between a state of affairs and a time.

between how reality *is*, and how reality *was* and *will be.* In order to express this change, the A-theorist gives up the idea that we can describe change just by using quantifiers, and introduces tense operators (i.e. intensional operators), such as *P* ('it was the case') and *F* ('it will be the case'). As will be explained, eternalist A-theorists and presentists have slightly different ways of understandings how tense operators work, but we can ignore this here.[19] Tense operators work by shifting the sentences (or formulas) in their scope to be evaluated at other times. Thus, *P* (Socrates sits) is true, if and only if for some past time, 'Socrates sits' was true then. In this way, the sentence gets the correct truth-value, and the A-theorist adequately expresses how reality has changed. However, compared to the B-theorist's approach, which simply involves quantification over objects (or temporal parts of objects) and the properties they have at different times, the A-theorist's approach is less transparent, because it is not clear which aspects of reality these tense operators reflect.

Another motive for B-theoretic eternalism, which we have already seen, is McTaggart's claim that the A-series is contradictory. This is accepted by many B-theorists.[20] This objection to the A-theory is closely related to the claim that only the B-theory can account for change and temporal passage. A-theoretic accounts of change rely on the idea of an objectively privileged present moment. This privileged present either moves through time, making successive moments of time uniquely present; or in the case of presentism, the present is the only time that exists, such that things continually come to be and cease to be, as they become and cease to be present. B-theorists, in contrast, deny that postulating this notion of an objectively privileged present can account for change. One reason for this is that when the A-theorist tries to explain the movement of this privileged present, including when they appeal to primitive tense operators, they run into McTaggart's paradox in some form or another. Dennis Dieks raises this objection, as he claims that primitive tense operators just mimic an additional realm of 'supertime', which just leads to a regress.[21] (We consider this objection, and responses to it, in the context of the moving spotlight theory below.)

---

[19] For the presentist, truths about past and future things can only be determined by considering how things are now. Whereas for the moving spotlighter, the temporal truths about past and future things can only be determined by considering how things in the past and future *are* at those times.

[20] For example, Mellor, Le Poidevin, Oaklander.

[21] Dieks (2016), p.6.

Another reason for claiming that the A-theorist cannot account for change is that many B-theorists agree with Fine's objection to standard A-theories.[22] According to Fine, the picture of reality standard A-theories present us with, which is of a series of distinct realities, each described from the viewpoint of a unique present moment, is too static to account for passage. Fine's objection is that a succession of distinct realities is not sufficient to explain a change *in reality* itself. So while the A-theorist *describes* change between distinct realties, they do not adequately explain the content of that change. (We return to this objection in §3.9 below.) Finally, there is the objection, also made by Dieks, that in postulating this privileged and moving now, the A-theory introduces additional things, which are not there in the physical explanation of the four-dimensional manifold. The important point, according to Dieks, is that 'all this additional information brought in to explain our intuitions about the passage of time, can never play an explanatory role at the level of physics'.[23] As we have seen, this last objection is controversial, as there are interpretations of quantum mechanics which at least suggest that there may be something like an absolute present in physics. However, B-theorists claim that they can give adequate accounts of change, in tenseless terms and without postulating a privileged present. This is because B-theorists typically believe that variation in a thing's properties over time (i.e. the difference between the properties a thing has at an earlier time, and the properties it has a later time) is sufficient for change. And hence all we need for change and time is already there in the B-theoretic picture. Let us now consider some of these B-theoretic accounts of change, beginning with some background to the B-theory and the problem of change.

3.6 B-theoretic accounts of change: a response to McTaggart

According to B-theorists, all times and their contents (events and individuals) exist on a par. For the B-theorist, this means that non-present times and their contents are as much a part of *concrete* reality as the present time and its contents are. On this view, the present is not objectively special. Instead, 'presentness' is merely a perspectival property, which is ascribed to a time or event when it happens to be simultaneous with our current experience. According to the B-theory, all events in time are ordered by permanent B-relations (being earlier-than, simultaneous-with, or later-than one another). Given eternalism and the B-series, the B-theorist holds that

[22] However, we should note that Fine also claims that B-theoretic accounts trivialize change. This is why he argues for non-standard realism about tense.
[23] Dieks, ibid., p.18.

we can give a complete description of temporal reality in terms of the tenseless B-relations between these events. This description is held to be complete in that it is a 'once-and-for-all' (unchanging) description, which is taken from outside the time series; the view from 'nowhen'.

As we have seen, McTaggart held that variation was not sufficient for change. McTaggart held that the only way things could change is by changing their position in the A-series, which involves losing and gaining various A-properties, as time passes. Naturally, B-theorists deny this claim. B-theorists claim that change can be accounted for in purely B-theoretic terms. In the previous chapter, we saw that B-theorists claim that all tensed facts can be reduced to tenseless or B-facts. Thus the B-theorist claims that tensed facts (such as 'the leaf *was* green' and 'the leaf *is* red') merely reflect our subjective perspective on reality, whereas the fundamental facts are tenseless facts, which are permanently true. Thus, if the leaf is green at t_1 and red at t_2, there are two distinct tenseless facts about the leaf, which never change truth-value. For example, it is permanently true that the leaf is green at t_1 and permanently true that the leaf is red at t_2. Hence, sentences reporting these tenseless facts report distinct facts, which are consistent with one another.

In the example above, it is clear that there are two distinct tenseless *facts* about the leaf, which never change. However, when it comes to explaining how *objects* themselves change over time, B-theorists do not want to say that there are two distinct objects that never change. For example, they do not want to say that there is one leaf that is permanently green and another leaf that is permanently red. Rather, they want to say that *one and the same* leaf persists through time, and changes from being green to red.[24] Thus, in order to report a change, it must be the same leaf that is green at t_1 and red at t_2. This presents a problem, known as the problem of temporary intrinsics (or the puzzle of change). The puzzle is this: how can one and the same object have incompatible intrinsic properties?[25] We want to say that the leaf persists through time and changes by losing the property of being green and gaining the property of being red. However, this seems to involve ascribing incompatible properties to the same leaf (being green and not-green). According to Leibniz' law, if any two objects are identical, then they share all their

[24] Henceforth understood as the claim that the leaf changes from being *completely* green to being *completely* red.

[25] Intrinsic properties are properties that belong to an object itself, such as being round, red, or straight. Intrinsic properties are contrasted with relational properties, which are properties had in relation to something else, such as being an aunt, or being taller-than X.

properties. So if an object has incompatible properties, then it seems that it cannot be the very same object after all. Stated formally, the argument looks like this.

1. Object O at time t is identical with object O at a later time t*
2. O at t is F (e.g. green.)
3. O at t* is not-F (not green)
4. Leibniz's law: if two objects are identical, then they share all their properties.
5. If O at t is green, then O at t* is also green
6. If O at t* is not green, then O at t is also not green.
7. O at t and O at t* are green and not green.

So the problem for the B-theorist is to explain how *the same* object has incompatible properties at different times. Let us consider how Lewis, who is a B-theorist, tackles this problem.

3.6.1 Lewis on change and temporary intrinsics

In *On the Plurality of Worlds*, Lewis considers the problem of temporary intrinsics, and comes up with three possible solutions. Lewis begins by saying:

> Let us say that something *persists* iff, somehow or other, it exists at various times; this is a neutral word. Something *perdures* iff it persists by having different temporal parts, or stages, at different times, though no one part of it is wholly present at more than one time; whereas something *endures* iff it persists by being wholly present at more than one time. Perdurance corresponds to a way a road persists through space; part of it is here and part of it is there, and no part of it is wholly present at two different places. Endurance corresponds to the way a universal, if there are such things, would be wholly present wherever and whenever it is instantiated. Endurance involves overlap: the content of two different times has the enduring thing as a common part. Perdurance does not.[26]

Lewis says that in the temporal case he favours perdurance because it is closer to the counterpart theory he favours in the modal case. However, his main objection to endurance is the problem of temporary intrinsics. Lewis explains this as follows:

[26] Lewis (1986a), p.202.

> Persisting things change their intrinsic properties. For instance shape: when I sit, I have a bent shape; when I stand, I have a straight shape. Both shapes are temporary intrinsic properties; I have them only some of the time. How is such change possible? I know of only three solutions.[27]

Lewis then outlines these solutions. The first is to say that things like shape are not really intrinsic properties; instead they are disguised relations. Consider the leaf, which changes from green to red. Here, one and the same enduring object bears the green-at relation to some times, and the red-at relation to other times. And similarly for all apparently intrinsic properties. The problem with this account is that considered in itself, without its relation to other things (in this case, times), the leaf has no colour at all. Hence according to Lewis, the 'solution' to the problem of temporary intrinsics is to deny that there are any temporary intrinsics. He cannot accept this, because we know that things like shape and colour are properties and not relations.

The second solution is presentism. Presentism allows that the only properties a thing has are those it has at the present moment. On this view, an object never has incompatible properties at the same time, as it only exists at one time, the present. Thus, if the leaf is presently green, it is not any other way. Lewis explains that on this account, non-present times are like false stories and are 'abstract representations, composed out of the materials of the present'. Lewis suggests that in order to describe a change, the presentist has to hold that something *has* an intrinsic property (for example, the leaf has the property of being red) at one of these ersatz times. But he says nothing *has* these properties (presumably because no non-present thing exists). So according to Lewis, this presentist solution rejects endurance by rejecting persistence altogether. Lewis cannot accept presentism because, as he understands it, saying that there is no *genuine* past and future goes against what we all believe. For example, he says 'no man, unless it be at the moment of his execution, believes that he has no future; still less does anyone believe that he has no past.'[28]

Naturally, the presentist does not accept Lewis' interpretation of their view. According to the presentist, what most people believe is that they are enduring

[27] Ibid. p 204.
[28] Ibid.

individuals, who are wholly present at the present moment, but who have had a past and will have a future. Lewis' interpretation of presentism suggests that a man just exists in the present, without previously existing in the past; and this strange solipsistic view is not the view held by the majority of presentists. However, even for B-theorists who do not interpret presentism as Lewis does, they cannot use this solution, as B-theorists are eternalists.

Lewis' third (and favoured) solution is to reject endurance and accept perdurance. According to perdurantism, we perdure by being made up of temporal parts. On this view, we are temporally extended four-dimensional particulars, spread out in spacetime, much as the road is a spatially extended particular. According to four-dimensionalist ontology, O at t and O at t* are different (three-dimensional) temporal parts of the four-dimensional particular O. So it is not the case that O has incompatible properties. Rather, it is the distinct temporal parts of O which have these distinct intrinsic properties.

On this view, the leaf is a four-dimensional particular. If the leaf persists over a six-month period, the leaf will have a worldline extending along a six-month section of spacetime. And located at each stage of the leaf's worldline are different temporal parts, which are ordered in time like slices; hence, a four-dimensional object is sometimes described as a 'spacetime worm'. So at one end of its worldline, the leaf has small green temporal parts, along the middle section it has larger green temporal parts, and towards the other end of its worldline it has red temporal parts and then brown temporal parts. Each temporal part has distinct intrinsic properties, whereas the leaf itself is said to have the properties of being green-at-t and not-green-at-t*. Hence the perdurantist has no problem explaining how things can differ in their intrinsic properties. According to Lewis, perdurantism is the only viable solution to the problem of temporary intrinsics.

It is no surprise that A-theorists, including eternalist-A-theorists, deny that a perdurantist account of change is 'genuine' change. Perdurantism describes variation between the properties instantiated by permanently existing temporal parts of four-dimensionalist objects. According to the A-theorist, this account of variation is not change, as each of these temporal parts instantiates these properties *permanently*. This is correct, but this is also an objection other B-theorists can raise against Lewis. For example, Lewis has criticized the relational account of change, on the grounds that 'relationized' properties are not intrinsic. On Lewis's account,

properties like being straight or red are intrinsic, but the problem is that they are not *temporary* intrinsics. So Lewis has not given us an account of how intrinsic change is possible, but rather an account on which it is impossible; because what he has shown is that intrinsic properties are *permanent* properties. We now consider the argument of a B-theorist (Mellor) who rejects the perdurantist account of change, and who argues for a combination of endurantism and the B-theory.

3.6.2 Mellor's B-theory of change

In *Real Time II*, Mellor argues for an endurantist account of change. He begins by making some important distinctions. First he distinguishes truthmaking *facts*, such as the fact that Jim races on 2 June, from *particulars* like Jim. Facts, for Mellor, are existing states of affairs, which correspond to sentences like 'Jim races', and make such sentences true. Secondly, he distinguishes *things* (particulars capable of change) from *events* (particulars incapable of change). For Mellor, '*things'* includes both living things (e.g. people, plants, and organizations), and inanimate things, (e.g. quarks and galaxies).[29]

Mellor says that his B-theory of change is only going to apply to *things*. According to Mellor, *events* do not change because they have temporal parts. However, in contrast to events, Mellor denies that *things* have temporal parts 'even when extended in time'.[30] He takes this to mean that things are 'wholly present at every moment within their B-times'.[31] (We consider what this might mean below.) Mellor also says that the type of change he is considering is not relational change, where we undergo property change in virtue of a change in something else. Instead, he wants to account for real change, which he describes as follows:

> Real changes of properties need effects, and for them to be changes in the things to which we ascribe those properties, that is where their first effects must be.[32]

Mellor calls this 'the causal test for change'. He says there is also a causal test for properties that are changeable. This test disposes of necessary properties (which

[29] Mellor (1998), op. cit., p. 85.
[30] Ibid., p.86.
[31] Ibid.
[32] Ibid., p.88.

never change), relational properties (which are changes in others), bogus properties, like Goodman's *grue* (where no thing changes by ceasing to be *grue*), and properties like age, which Mellor says is related to the flow of time, which is something he denies. (In contrast, real ageing produces changes like decay, with real causes and real effects in us.)

With these distinctions made, Mellor says, 'a change, then, is a thing having incompatible real properties at different times.'[33] He explains that although events can also have different properties at different times, this is just *apparent* change. This is because in a temporal parts account of change, it is two *different* entities that have the different properties; whereas a real change needs the identity of a single (enduring) particular, as well as the difference in properties.[34] So Mellor does not accept Lewis' solution to the problem of temporary intrinsics.

Mellor considers whether rejecting a temporal parts account of change, in the case of *things*, commits him to the idea that properties are relations to times. He admits that this idea preserves identity; but he agrees with Lewis here that intrinsic properties like shape and colour are *not* relations. However, Mellor says that denying both the temporal parts account of change and the relation account of change leaves the B-theorist with a problem. For example, consider a ripening tomato, which undergoes a real change, by being green on Monday and red on Tuesday. If the B-theorist accepts that intrinsic properties are *not* relations to times, she cannot say:

- *F* (*a, t*) : (the green-at relation holds between the tomato and Monday) and
- *F'* (*a, t'*) : the red-at relation holds between the tomato and Tuesday.

So if the B-theorist has also rejected the temporal parts account of change, Mellor says there is only option left. This is to account for this change by saying that the B-times *t* and *t'* are 'the temporal locations of non-relational facts, *Fa* and *F'a*, which constitute this change.'[35] And Mellor says that to represent these facts, the B-theorist should use temporal operators. For example:

- at t, *Fa*, : e.g. Monday (the tomato is green)

[33] Ibid., p.89.
[34] Ibid.
[35] Ibid., p.91

- at t', *F'a* : e.g. Tuesday (the tomato is red)

The problem here, Mellor says, is that 'operators are supposed to be prefixed to sentences that express *definite* propositions [a proposition that can be given a definite truth-value]. But '*Fa*' read as a B-sentence, does not do this.'[36] For example, read as a tenseless or B-sentence, '*Fa'* does not tell us *when a* is F. Because the 'is' here is *tenseless*, '*Fa*' just tells us that *a* has the property *F at some unspecified B time*; which is why putting an operator (at *t* or Monday) in front of it does not give it a definite temporal location. Consider the ripening tomato. Green is not a permanent property of the tomato. Hence, the tomato may be green and not-green at different times, and the B-sentence 'the tomato is green' (tenseless is) will sometimes be true and sometimes be false. But if we do not know *when* the tomato is green, we cannot get a single proposition (the proposition expressed by the sentence 'the tomato is green'), with a single truthmaker. Instead, the B-sentence 'the tomato is green' will correspond to many different B-truthmakers, with different truth-conditions. Hence Mellor says that the B-sentence '*Fa*' will not have a single truth-value.

Mellor says that this suggests that there is no B-fact *Fa* located at *t*, or B-fact *F'a* located at *t'*, contrary to what the operator approach says. So it seems that the B-times *t* and *t'* cannot be locations after all, and that instead they are *constituents* of facts. However, Mellor says that if the B-times *t* and *t'* are constituents of the facts *a* is *F* at *t* and *a* is *F*' at *t*', 'then it looks as if *F* and *F'* must after all be relations between *a* and times.'[37]

Mellor contrasts this with '*Fa'* read as a tensed or A-sentence. He says:

> '*Fa'*, read as an A-sentence, always expresses the definite A-proposition '*a* is *now F*'. And to prefix this with 'at *t*', whether *t* is a B-time like 3.15 or an A-time, like 'an hour hence', is just to say when '*a* is *now F*.'[38]

So, on the A-reading, whether we prefix '*Fa*' ('the tomato is green') with On 2 July or Yesterday, we can evaluate the proposition. On the B-reading we cannot, because *'Fa*' read as a B-sentence cannot express a definite proposition.

---

[36] Ibid.
[37] Ibid.
[38] Ibid., p.91.

Faced with this problem, Mellor considers the options. Mellor thinks the temporal parts account is the worst option. So he considers whether changeable properties could be relations after all, but concludes that they are not. Hence he says that the operator approach must be correct. He therefore reviews his arguments for the problems with that approach, and makes two amendments. First, he says that operators need not be prefixed to sentences that express definite propositions. To support this claim Mellor says that on 'the view that there are many possible futures, none of which is yet actual, and the operator 'it is possible that' prefixed to future-sentence 'P' … On this view, 'It is possible that P' will be true even though 'P' lacks a truth-value.' He then says that, albeit for different reasons, 'at *t, Fa*' may be true even if *Fa* lacks a truth-value.'[39]

Secondly, Mellor says that he previously said that the B-sentence '*Fa*' lacked a single truth-value because it has different B-truthmakers at different times (as opposed to a single truthmaker at *t*). While Mellor still thinks this is the case, he amends the previous idea that B-times must be *constituents* of those B-truthmakers, to the idea that they need not be. He accepts instead the idea that B-times *can* be the *locations* of those B-truthmakers. This means that 'at *t, Fa*' can be made true by B-facts that differ only in their locations, *t*. For example, if *Fa* has as its constituents the tomato and the property of being green, then the B-time Monday is the location of the truthmaker for Monday, *Fa*, and similarly for the B-time Sunday, when the tomato is also green.

Mellor says 'the B-sentence '*Fa*' will still correspond to infinitely many B-truthmakers (e.g. all the B-times when the tomato is green). So to give it a unique truth-value, something said … will have to pick out one of them, as 'at *t*' does.'[40] However, he says this can be picked out by the single fact (state of affairs) *Fa* that is *located* at *t*. Mellor therefore concludes this his B-theory of change is preferable to the temporal parts account and the relational account, as it provides a B-theoretic way of explaining 'the temporal nature of change, while requiring things to be … wherever and whenever their properties are.'[41]

[39] Ibid., p. 94.
[40] Ibid.
[41] Ibid.

Mellor admits that a cost of his account is that it violates *the identity of indiscernibles*. This is because his account allows that different B-facts share all their constituents. For example, the fact that on Sunday the tomato is green, shares the same constituents as the fact that on Monday the tomato is green; namely, the tomato and the property of being green. So two different facts have the same properties. However, Mellor says that he already has a reason for rejecting the identity of indiscernibles. This is his 'criterion of identity for causal facts'; namely, 'that such facts are identical if and only if they have the same causes and same effects.' In this case, he says that a fact like *Fa* cannot be a single fact, as it will typically have many causes and effects at different times.[42]

So Mellor supports his B-theory of change, by pointing out the defects in other B-accounts of change, and then claiming that by treating B-times as temporal operators, we can explain how things that endure (persist by being wholly present) can have different intrinsic properties whenever they are located in time. However, the A-theorist is unlikely to be convinced by this as a theory of *change*. Mellor's B-theoretic operators allow him to describe B-change in terms of non-time-relational properties. But as these properties belong to the entity in question *permanently* (as opposed to A-properties, which an enduring thing loses and gains), the A-theorist will just see this as variation over time. Mellor accepts that his account is an account of variation. Hence, for the A-theorist, in this respect Mellor's account does no better than the relational account or the temporal parts account, as it just describes how things are permanently at different times.

However, there is deeper problem with Mellor's account. I think Mellor is correct that the idea of merely being a temporal part of a particular thing or individual is unintuitive. This is because we want to say that things, including ourselves, are wholly present wherever they or we are. Mellor accepts that the *events* have temporal parts, which is why he says that events cannot change. But unlike events, he says that enduring *things* are wholly present throughout *every temporal part of the events* that happen in their worldlines. So on this picture, there exist temporally extended things, which are wholly present at all of the different times they are located at. As these are *B-times*, they all exist on a par (with no time privileged), and the entities located at these B-times are *concrete* particulars. The problem here is understanding how one and the same concrete entity can be wholly present at

[42] Ibid., p. 95.

different times throughout its history (or at the temporal parts of the *event* that is one's life), when all these times are 'equireal' and no time is privileged. The very notion of a concrete thing (the whole thing and not just a part of it) existing at one temporal location seems to *exclude* the possibility of that same thing existing at another temporal location, at least on the eternalism assumption that all times are 'equireal'. On Mellor's view, it seems that a single enduring object is wholly present at earlier and later times than itself.

In the case of spatial location, if a particular thing, such as Nelson's Column, is wholly present in Trafalgar Square, we say that it is *there* and *nowhere else*. So if we do not accept that things can be wholly present in more than one place, why should it make sense to claim that things can be wholly present at more than one time, when all times are real, and no time is privileged over any other? Mellor's B-picture describes a single enduring concrete particular that is extended in time, (and thus multiply located), which is nevertheless singly and wholly present at each time. This sounds like a contradiction in terms.

In the temporal parts account, there is at least something intuitive about the idea that temporal parts belong to temporally extended things, analogous to the way that spatial parts belong to spatially extended things. Consider the example of a road. The whole of Fifth Avenue is located in midtown Manhattan; rather, it has distinct spatial parts located midtown, uptown, and in Harlem. Similarly, temporal extended things have distinct temporal parts at different times all along their worldlines (e.g. a four-dimensional person has childhood parts, adult parts, and elderly parts). Enduring things, in contrast, have no temporal parts. So to say that an enduring thing is wholly present at a time, means that that thing is located at a time in its entirety, and 'no-when' else. And this suggests that a thing that is wholly present is not a temporally extended thing. (The spatial analogue is for something to be wholly located at one place and nowhere else.)

Mellor is aware that co-existence is an issue for the B-theorist. For example, he has two reasons for objecting to standard B-theoretic accounts of change. First, it reduces change to changeless facts (permanently existing states of affairs); he writes:

> If a poker is hot at 2.15 and cold at 3.15, then those always were and always will be its temperatures at those times.[43]

And second, it cannot distinguish spatial variation from temporal variation. He continues:

> What stops the poker's being hot at one end and cold at the other being a case of change is precisely that its hot and cold ends co-exist in a single world, albeit in different B-places. [i.e. this is variation, not change.] But then … on a B-theory, the hot poker and the cold poker also co-exist in a single world, albeit at different times. So if, as everyone agrees, co-existence rules out change in the spatial case, how can it be compatible with change in time?[44]

This second objection concerns *things*, not just facts.[45] And regarding *things*, as Mellor accepts that co-existence rules out change in the *spatial* case, he needs to show why co-existence does *not* rule out change in the *temporal* case. Moreover, in the spatial case, he accepts that if a thing is wholly present in one place, it cannot (at the same time) be in a different place.[46] So why does he deny that the same applies in the temporal case?

Mellor appeals to causation, as a way of distinguishing temporal variation from spatial variation. For example, consider Mellor's amendment to the operator approach above, in which logically independent facts can share the same constituents, but be distinguished by having different B-times as *locations*. Such as,

- Sunday (the tomato is green)
- Monday (the tomato is green)

Mellor says that although these facts are logically independent, they are not *causally* independent. Hence, the tomato is not ripe on Monday *because* it is not ripe on Sunday. (Mellor adds; this is the reason why causes always precede their effects.)

---

[43] Ibid., p.71.
[44] Ibid.
[45] For example, if facts exist permanently at B-times, so too must the things which are constituent parts of those facts. (Facts, for Mellor, being existing states of affairs).
[46] Ibid., p.116.

Mellor says more about how causation distinguishes time from space and makes time the dimension of change; most of which concerns temporal order and the direction of time. Once this is established, he directly address the question, 'how does causation enable things to be wholly present at different times but not (at the same time) in different places?'[47] Mellor's answer begins with rehearsing what has been previously said. Variation occurs when incompatible properties are had at different points in spacetime. Spatial variation is not change, as this is merely a difference between *distinct* spatial parts of the same thing (or between different things). Similarly, in the case of events, temporal variation is not change, because this is merely a difference between *distinct* parts of an event; parts which do not change. Thus, for temporal variation to involve change, we also need identity. Hence Mellor claims that for there to be *change,* there must be some *enduring thing* that remains the same, despite having incompatible propeties at different times. (For example, object *x* is hot at t_1 and cold at t_2.) Thus Mellor says 'change is variation in the property of things'.[48]

Mellor explains that the identity and existence of objects depends on their properties. For example, some of Mellor's properties are essential, such as being human; whereas other properties are inessential, such as being located at time *t*. What is important, for Mellor, is *which* changeable properties are essential to a thing, such that it could not survive without them. For example, if *a* is essentially human, then *a* can change from being a baby to an elderly man, provided that this is a gradual enough change, throughout which *a* keeps the sortal property 'human'. Or if being an animal is an essential property of Mellor, he suggests that he might be able to survive a radical change from human to a rhinocerous, provided it was a gradual enough change, throughout which he kept the sortal property 'animal'. His point is that the role of causation in explaning change means that *unlike* spatial variation (which can be abrupt and discontinuous), for an enduring thing to change over time, that particular thing needs the continuous possession of some (or enough) of its important properties to preserve its identity. That is to say, some essential features of that thing must remain unchanged. And Mellor says that when *a* changes, what keeps any properties of *a* unchanged, is causation; since causation is what links the facts about how *a* is at different times.[49]

[47] Ibid. p.116
[48] Ibid.
[49] Ibid. p.117.

The problem here is that I do not see how Mellor's appeal to causation really helps him. Mellor appeals to a causal criterion of identity, to show that what matters for identity over time is not that *a* has all the same properties over time (as is required by the identity of indiscernibles), but rather, that the facts about how a particular thing is over time are linked in a particular (identity preserving) way. And he contrasts this with facts about spatial variation, which need not be linked in this way. However, the issue here is not about how to preserve the identity of a thing that undergoes variation in its properties over time. Rather, the issue is the need to explain why a thing *can* be wholly present at more than one time (given temporal parity), when that thing *cannot* be wholly present in more than one space (given spatial parity). So I do not see how Mellor's claim about facts being causally linked in a certain way answers *this* question.

I think Mellor is correct to say that variation between different parts (temporal or spatial) of an object is not change, as this is merely a difference between the properties *permanently* belonging to different parts of that object. Mellor wants to explain how a *single* enduring thing can change, not how distinct parts of that thing differ. But it seems to me this is what Mellor cannot have as a B-theorist. As we shall see below, certain eternalist A-theorists (Cameron, and Sullivan) also claim that objects persist by enduring. However, in their attempts to make the combination of eternalism and endurantism plausible, these A-theoretic eternalist accounts involve three commitments that Mellor's B-theory of change lacks. Namely: that the present is objectively special in some way; that existing non-present objects lack certain key properties that present objects have (and hence change involves some kind of A-property change); and they endorse propositional temporalism (the view that the most accurate description of the world is subject to change.)

As a B-theorist, Mellor cannot appeal to any of these things to try and explain why an enduring concrete object that is wholly present at a particular time, is *not* equally wholly present at all the other temporal locations at which it exists. For example, for Mellor, there is nothing objectively special about the present or its contents; so he cannot claim that how a thing presently is, is how it is simpliciter (in contrast to how it is at non-present times). Nor can he claim that three-dimensional objects only have properties such as having a shape, or being concrete when they are present. And since he holds that reality is tenseless, all tensed truths are reducible to tenseless truths, which are permanently true. Hence he cannot say that what

makes facts about an enduring entity true, changes over time. Moreover, if Mellor allows that a temporally extended object exists simpliciter at all of its different temporal locations, this suggests that it *is* spread out in time, much as a spatially extended object is spread out in space. And in the spatial case, Mellor admits that this involves the objects having different spatial parts.

The problem (as I see it) comes from trying to combine a tenselsess picture of reality, in which everything is permanently true, with endurantism. Given Mellor's acceptence of the existence of the four-dimensional block universe, he does not successfully explain how persisting things can be other than temporally extended wholes. For example, Mellor claimed he could show that co-existence does *not* rule out change in the temporal case (whereas it does in the spatial case), but I do not think he does this. Moreover, his account of B-theoretic change violates the indiscernability of identicals. And since preserving this principle was one of the motivating factors in the problem of change (or problem of temporary intrinsics) in the first place, this is another cost of Mellor's theory. Mellor claims that he can give each B-sentence (e.g. *Fa*) a unique truth-value, which can be picked out by the single fact (state of affairs) *Fa* that is *located* at *t*. However, even if this avoids the relational view (which Mellor claims it does), this B-fact is permanately true; in which case, if *a* is wholly present at more than one time, then there will be incompatible B-facts about *a*.

I therefore remain unconvinced that Mellor really answers the question about how an enduring particular can be wholly present (i.e. located) at different times, given temporal party.[50] On the one hand, I understand his point that change requires identity. On the other hand, his account leaves me unclear about how to think of my own identity, if I am wholly present now, and also wholly present at all other B-times at which I exist, since B-times are equireal. That is to say, Mellor's account suggests that I am wholly located at a single point in time (now) and also multiply located at each point along my timeline, and I struggle to make sense of this. Additionally, as we are considering B-theoretic eternalism, where everything always exists and no time is privileged, I am not sure what role causation actually plays, in the sense that (on the B-picture) causes do not actually *produce* their effects. This is because the effects are always in existence. For these reasons, I do not find

[50] A-theorists who argue against a combination of the B-theory and endurantism include Cameron (2016), Carter and Hesteveld (1994), Craig (2000b), Ingthorsson (2016), Merricks (2007). Many B-theorists accept that the B-theory implies perdurantism.

Mellor's B-theory of change persuasive. We now consider our final B-theoretic account of change, Oaklander's R-theory.

3.6.3 Oaklander's R-theory

Nathan Oaklander is a B-theorist who develops an alternative account of the B-theory, in order to account for the passage of time, and change. Oaklander says that the A-series is typically held to be a dynamic series, which involves 'flow, transition or passage, from one temporal object to the next.'[51] However, like Dieks, he claims that the A-theory is static, and hence that it cannot give us succession (which he says is 'nothing more than one moment coming after the next').[52] Oaklander has two reasons for this. First, he agrees with Fine that describing one term in the time series as being 'present' is not enough to give you passage or succession.[53] Secondly, he claims that however the A-theorist tries to explain passage or succession (e.g. events coming into and going out existence, or A-property change), they end up coming up against McTaggart's paradox.

However, Oaklander is also dissatisfied with standard B-theoretic accounts of temporal passage, because he claims they are too static. For example, Oaklander says that the B-series is typically held to be 'a static view of time that involves unchanging and fixed relations between temporal objects, and unchanging tenseless facts.'[54] His criticism of this static view is as follows. He says that when it comes to explaining the phenomenology of temporal passage (our experience of passage as dynamic):

> B-theorists typically develop anti-realist; that is, mind-dependent views of the dynamic aspects of temporal experience, and reductive analyses of tenses in becoming, that are compatible with the static or four-dimensional block universe.[55]

---

[51] Oaklander (2011) I9:45 mins.
[52] Ibid., 16 mins.
[53] Fine's objecton is that in order to have passage, we need an account of the *successive* possession of the property of being present; i.e. passing from one time to the next in the time series.
[54] Ibid.
[55] Ibid., 17:24 mins.

Oaklander therefore presents his version of the B-theory, which he calls the R-theory (or Russellian theory), as an alternative to the standard B-theory.[56] Oaklander admits that there is a *superficial* agreement between his theory and standard B-theories, in that 'they are both realists about temporal relations'.[57] Despite this, Oaklander explains that R-relations are different from standard understandings of B-relations in two important ways.

First, Oaklander says that in the standard B-theory picture, the temporal relations are 'usually analysed in terms of causal relations or the physical relation of entropic increase.' In contrast, he says that in the R-theory, R-relations are temporal relations that are 'given in experience as *phenomenologically simple relations*, and are thus taken as unanalyzable and irreducible mind-independent entities in the ontology of time.'[58] Oaklander gives three reasons for preferring the R-theory to standard B-theories. The first is his claim that temporal succession is a *fundamental* phenomenon, which should be grounded on a simple entity, such as the R-relation. His complaint here is that the reductive analysis of the direction of time grounds temporal succession on relations that are 'derived and complicated'.[59] The second reason is his adherence to the principle that 'we must be acquainted with the simple entities of one's ontology.'[60] His complaint here against the reductive analysis is that when we perceive temporal succession, we do not perceive causal or entropic relations; and hence we are not acquainted with the simple entities of one's ontology. His third reason is his claim that as a ground for earlier-relations, causation and entropy are circular, because 'they presuppose temporal succession and the direction of time'.[61]

The second difference between standard B-theories and the R-theory concerns the dynamic or transitory nature of time. According to Oaklander, standard B-theorists see the dynamic nature of time as something mind-dependent and subjective.[62] The idea here is that although our experience 'as of' passage is real, passage or transition is not an obejctive feature of the world. The R-theorist, in contrast, is a *phenomenological realist*, who takes it that 'a simple irreducible temporal feature is

[56] For Oaklander, this includes Mellor, Le Poidevin, Armstrong, Smart, Grünbaum, and Dyke.
[57] Ibid., 23 mins.
[58] Ibid., 24 mins.
[59] Oaklander (2012), p.5.
[60] Ibid.
[61] Ibid.
[62] Oaklander (2011) 29 mins. (See also, Oaklander (2012) p.14.)

dynamic.'[63] Thus, Oaklander says that in being acquainted with transition from earlier to later temporal items, we are acquainted with the mind-independent R-relation – and this is 'a *dynamic* relation, which has an intrinsic sense from one term to the next'.[64] So the claim here is that passage of time is grounded on the dynamic and mind-independent R-relation, which we are acquainted with in our experience of one moment coming after the next.

Thus for Oaklander, the R-theory has two advantages over standard versions of the B-theory. First, as R-relations are primitive and unanalyzable, they cannot be reduced to either causal or entropic relations.[65] Secondly, the R-relation provides a *mind-independent* account of the dynamic temporal relations holding between temporal items. This enables the R-theorist to claim that succession is something that exists in the external world, *without* being committed to an A-theoretic ontology.

As a consequence of the claim that temporal relations are irreducible, and the claim that there are no intrinsic temporal *properties* (such as A-properties), Oaklander says that 'the only category of intrinsically temporal entites are relations'.[66] Hence time, on the R-theory is *relational.* According to Oaklander this means that 'all ontological facts about time are understood as grounded in relations and that includes durations such as *lasts as long as'* (and so on).[67]

Oaklander then explains how the R-theory can account for dynamic transition and succession, even though reality consists of temporal facts, which are eternal and unchanging. He says:

> A transition is a temporal succession of opposite states, and a succession is based on the earlier-than relation. A temporal relational fact itself does not change; it is eternal, but it may *be* a change; and in that sense involves a transition from earlier to later events or particulars (or more neutrally, temporal items).[68]

---

[63] Ibid., 27 mins.
[64] Ibid., 29 mins.
[65] Nor can R-relations be generated from another source; in contrast to McTaggart's B-series, which can be generated from the application of the A-series to the (non-temporal) C-series.
[66] Ibid., p.4
[67] Ibid.
[68] Ibid., p.7.

The picture we have is of there being eternal and unchanging R-facts, in addition to dynamic R-relations (occurring earlier-than). To support this idea that the R-theory is eternal, even though it is composed of dynamic facts, Oaklander appeals to Russell's 'relational universal'. To explain this, he cites Erwin Tegtmeier, as follows:

> What we hear according to Russell, when we hear the c-tone preceding the d-tone, is the relational universal of "occurring earlier than" together with its relata. We hear nothing else. Let us assume that we don't recognise the first tone [as] a c and the second as a d. Thus we hear only a temporal fact, which, as such, is a dynamic fact. … If the fact is dynamic, which one can take for granted, the relational universal in it must be dynamic.[69]

For Oaklander, this is how *unchanging* temporal-relational facts (R-facts), such as '*a* is earlier than *b*', can nevertheless be dynamic, and hence *be* a change. So the thought here is that our experience of *a* preceding *b*, involves us being acquainted with a dynamic relation; namely, the occurring earlier-than relation holding between two temporal items. The temporal relational fact is dynamic, even though the fact itself is eternal and unchanging (because *a* is always earlier than *b*). And the relation between *a* and *b* is dynamic, because it involves a *transition* from an earlier time to a later one. Thus a feature of the R-theory is that times and *durations* are understood as relations. For Oaklander, this is how primitive and unanalyzable R-relations can ground the passage of time.

Oaklander then explains the sense in which the R-relation is a timeless universal. He says:

> For the Russellian, R-facts, while they are not themselves in time, are indeed temporal, since they contain temporal relations. R-facts [like *a* is earlier than *b*] are entities in their own right over and above their constituents, and as such, they are not in time, in that they do not exemplify non-relational temporal properties or stand in temporal relations. In that sense time, understood as a Russellian series, composed of a conjunction of R-facts, is timeless. This view gives some meaning to an aphorism I favour; namely, that *time is timeless.* In other words, though time contains temporal relations, time does not exemplify them. Time is timeless in the further sense that the

[69] Ibid., p.8.

> ontological ground of temporal phenomena are relations, and on the R-theory, relational universals, such as 'occurring earlier than', are timeless. [70]

Thus according to Oaklander, given this realist (i.e. mind-independent) ontology of R-relations and R-facts, the R-theory can account for both the dynamic and the eternal aspects of time. The dynamic aspect of time is grounded in a timeless universal (the earlier-than relation), which is given in experience in the specious present. However for Oaklander, even though we experience this R-relation in the specious present, *time is timeless.* This is because the conjunction of these dynamic facts (R-facts), which composes the whole of time, is not itself in time. So according to Oaklander, R-facts are not in time; because they do not stand in temporal relations, or occupy moments of time, but they are temporal; because they '*contain* temporal relations'.[71] So the R-theory is the claim that time is eternal (i.e. timeless), and yet it is composed of dynamic facts.

Having explained what the R-theory is, and its advantages over standard versions of the B-theory, Oaklander briefly states the advantages the R-theoretic account of transition has over various versions of the A-theory. His main objection to all versions of the A-theory is that however they try to analyse transition or ground temporal relations (e.g. events coming into and going out of existence, or becoming present, or temporal relations only holding between terms that have A-characteristics) McTaggart's paradox (in one form or another) ends up making problems for their understanding of transition. His other objection, mentioned above, is that without an adequate account of transition (or succession), A-theories are static theories, which cannot account for change. Thus according to Oaklander, the R-theory is superior to both the A-series and the standard B-theory. This is because it provides a realist (i.e. mind-independent) ontology, which is able to ground transition, without involving A-properties, *and* also ground the eternal aspects of time; i.e. eternal and unchanging facts.

Oaklander's account is interesting in itself. However, what I find most significant is its contribution to the overall dialectic between the A- and B-theory. For example, A-theorists typically charge B-theorists with failing to provide adequate accounts of change, or temporal passage, but it is more unusual for a B-theorist to make this criticism of standard versions of the B-theory. That Oaklander criticizes standard B-

[70] Ibid., p.7.
[71] Oaklander (2011), 38 mins.

theoretic accounts of passage and change (because they are too static) is my main reason for including it here. It might be objected that Mellor's account offers the B-theorist an account of change, which is not purely subjectve or mind-dependent. However, as explained above, Oaklander rejects causal accounts of change on the grounds that we do not perceive casual relations. (Moreover, I remain unconvinced that Mellor's is successful, because I find his account of endurance incompatible with B-theoretic eternalism.) As for Oaklander's criticisms of the A-theory, I agree that some eternalist versions of the A-theory run into McTaggart's paradox, but I disagree that presentism does. I also disagree that A-theorists cannot account for change.

My main criticism of Oaklander's theory is that it is underdeveloped in certain respects. Oaklander claims that the R-theory provides the B-theorist with a way to claim that succession actually exists in the world. He sees this as an advantage, as it provides the B-theorist with a *realist* account of passage. However, Oaklander's claim that the R-relation is dynamic, rests on his claim that we are acquainted with this unanalyzable R-relation *in our experience* (of one thing preceding another). I find two problems with this. First, Oaklander claims that R-relations are 'given in experience as *phenomenologically simple relations*'. This is important, as it underpins his claim that R-relations cannot be reduced to non-temporal relations (i.e. causal or entropic relations), which are compatible with a static four-dimensional universe. However, Oaklander does not provide an independent argument to support his claim that R-relations are phenomenologically simple. (His criticisms of the A-theory and standard versions of the B-theory, does not make a *positive* argument for the R-theory.) So, without an independent argument, Oaklander's claim that the R-relation is a primitive and timeless universal seems like mere stipulation. Moreover, it is open to the B-theorist to respond by saying what matters is not that B-relations are primitive or irreducible, but that they cannot be reduced to A-properties.

Second (and relatedly), it seems to me that Oaklander has not adequately shown that the R-relation *is* mind-independent, or that reality itself is dynamic. This is because these claims are based on our *experience* of one event preceding another. So he needs to do something more to show that our experience of being presented with passage (in the specious present) is *not* mind-dependent (or that it does not involve us being acquainted with genuine A-properties). Hence, without a stronger argument to show that the R-relation *is* mind-independent, I conclude that

Oaklander has not successfully shown that the R-theory really offers the B-theorist a more dynamic account of passage. A further criticism that could be made is that Oaklander's notion of a timeless universal, which nevertheless has some duration, is just confused. However, I shall not pursue this criticism here.

Summing up. What this section shows us is that B-theoretic accounts of change and passage are not without their problems. It is not just A-theorists who criticize B-theoretic accounts of change; B-theorists disagree among themselves about how to account for change. For example, Lewis rejects the relational account of change, on the grounds that 'relationized' properties are not intrinsic, and claims instead that objects perdure by having temporal parts. Like Lewis, Mellor rejects the relational account of change, but he also rejects the temporal parts account of change for not preserving identity. Mellor seems correct to do this. However, Mellor's combination of endurantism and the B-theory is also problematic; and moreover, since it is an account of variation, it is not going to satisfy someone who wants more than mere variation from an account of change. Oaklander suggests that standard B-theoretic accounts are committed to an anti-realist account of passage. In contrast, he claims that the R-theory offers a realist B-theoretic account of change. As we have seen, Oaklander's account relies on the notion of the primitive R-relation (a primitive earlier-than relation), which is given in experience, although it is a mind-*independent* relation. However, in order to provide a genuinely dynamic B-theoretic account of passage and change, Oaklander needs to provide a stronger argument to show that this primitive R-relation *is* a mind-independent relation.

Nevertheless, the criticisms Mellor and Oaklander provide of various B-theoretic accounts of change and passage, add weight to the A-theorist's claim that the B-theory (standardly understood) cannot adequately account for change. As we have seen, B-theorists also charge the A-theorist with not being able to adequately account for change; either because they are too static (Fine's objection), or because they run into McTaggart's paradox. So let us now consider how the A-theorist might respond to these claims.

Part 2 – Non-presentist A-theories of time

We consider the various A-theoretic versions of non-presentism in three main sections:

- Eternalist A-theories
- Semi-eternalism, and
- Non-standard realism about tense.

Under 'eternalist A-theories' we consider Brad Skow's defense of the standard version of the moving spotlight, Ross Cameron's moving spotlight theory, Meghan Sullivan's version of 'Williamsonian presentism', and Quentin Smith's 'degree presentism'.[72] The semi-eternalist theories we consider are the growing block and Storrs McCall's 'shrinking tree'. And under 'non-standard realism about tense' we consider Kit Fine's non-standard versions of the A-theory; external relativism and fragmentalism.

3.7 Eternalist A-theories

Eternalist A-theories endorse both eternalism and the A-theory. While there are different versions of A-theoretic eternalism, they all share the following commitments:

- All past, present, and future times and entities exist.
- The present time is uniquely privileged over other times.
- The property of being uniquely present is a temporary property. Hence reality is dynamic, because which moment is uniquely present continually changes.
- Change involves losing and gaining A-properties (as opposed to properties that are held relative to times).
- There exist absolute, tensed facts (i.e. facts that cannot be reduced to tenseless facts, or facts that are relative to times).
- There are complete propositions, which can change their truth-value.
- The ultimate true description of reality is subject to change.

Given their eternalist ontology, eternalist A-theorists cannot characterize the privileged nature of the present in terms of existence. Instead, the present is held to be *metaphysically* privileged in certain respects. As was explained in the previous chapter, how each of the different versions of eternalist-A-theory characterizes this

[72] As noted above, both degree presentism and Williamsonian presentism are sometimes described as versions of the moving spotlight theory. However, I distinguish both these theories from the moving spotlight.

non-ontologically privileged property of being present is what distinguishes them from one another. For example, for the standard moving spotlight theorist, being uniquely present involves being 'under the spotlight'. For the Williamsonian presentist, being present involves being uniquely concrete. For the non-standard spotlighter, Ross Cameron, being present involves uniquely having essential *and* non-essential properties. And for the degree presentist, being uniquely present involves having maximal existence. However, despite their different ways of characterizing the property of being present, for all eternalist A-theorists this temporary property of presentness is what grounds all 'genuine' change, and the passage of time. We shall now consider each of these theories in turn.

3.7.1 The Moving Spotlight

The moving spotlight is the most familiar theory that combines the A-theory with eternalism. Here we consider what I call the *standard* version of the moving spotlight theory. The standard spotlighter takes the claim that past, present and future exist on a par to mean the following: that reality consists of a four-dimensional manifold of *concrete* objects and events, which exist permanently.[73] On this view, objects located at past and future times are as much a part of *concrete* reality as present objects are. Hence, dinosaurs are roaming around in their part of the manifold, Victoria is reigning in her part of the manifold, and people are celebrating the beginning of the fourth millennium in their part of the manifold.[74] Thus far, the standard spotlighter agrees with the eternalist B-theorist.

However, like all A-theorists, the spotlighter thinks that B-theoretic accounts of change are not sufficient for genuine change.[75] To explain this dynamism, which the B-view fails to capture, the spotlighter maintains that there is only one moment of time which has the objective property of being uniquely and absolutely (and non-relatively) present; this is the property of being under the spotlight. She also maintains that this property of being uniquely present continually moves from one time to the next, in a fixed and ordered direction throughout the manifold; from past, to present, to future. So according to the spotlighter, although Victoria and future

[73] As I am defining it, moving spotlight theorists claim that all existing entities exist *concretely*. This is opposed to the Williamsonian view, according to which non-present entities exist *non-concretely*; and also Quentin Smith's view, according to which non-present particulars only possess *relational* properties.

[74] Something like a moving spotlight theory was what McTaggart had in mind when he described and criticized the A-series.

[75] B-theoretic accounts describe *all* change as some kind of variation in the manifold.

persons exist just as concretely as present persons, it is not *now* the case that Victoria is Queen, or that people are celebrating the beginning of the fourth millennium. Rather, it is only when those parts of the manifold where those objects and events are located are 'under the spotlight' that they have the property of being absolutely present, and hence can truly be said to be 'happening now'. For all other parts of the manifold, those times and their contents either have the property of being past (being previously under the spotlight) or the property of being future (yet to be under the spotlight).

Although he criticizes the view, C.D. Broad provides the following spatial analogy, which nicely illustrates the spotlighter's idea of an eternalist ontology with a privileged moving present. He writes:

> We are naturally tempted to regard the history of the world as existing eternally in a certain order of events. Along this, and in a fixed direction, we imagine the characteristic of presentness as moving, somewhat like the spot of light from a policeman's bull's-eye traversing the fronts of the houses in a street. What is illuminated is the present, what has been illuminated is the past, and what has not yet been illuminated is the future.[76]

As Broad's description illustrates, the idea of the 'moving spotlight' is a metaphor for the passage of time. The spotlight describes the movement of a privileged present moment of time, across the four-dimensional manifold. The spotlight shines on one temporal location at a time, singling that time as 'the present'. Then as the spotlight moves, it shines on the next moment of time, singling that time out as 'the present', and then the next, and so on. The passage of time is thus explained in terms of an ordered series of moments, each of which successively becomes present (and momentarily privileged) as it comes under the spotlight. Similarly, Sider describes the moving spotlight as the view according to which 'there is a monadic property of presentness, which is possessed by just one moment of time, and which moves, to be possessed by later and later times, as time passes.'[77]

[76] C. D. Broad (1923), p.59.
[77] Sider (2011), p. 259.

3.7.2 Skow's Moving Spotlight Theory

We saw in the previous chapter that on the spotlight view, objects in the manifold do not change with respect to their ordinary concrete properties. Instead, *reality as a whole* changes; this is because the tensed facts that are true when one part of the manifold is under the spotlight (or absolutely present), cease to be true when the spotlight shines on a different part of the manifold. Hence the spotlighter describes a very minimal account of change, as the change occurs for different regions of the manifold, rather than for objects themselves. In his paper 'On the Meaning of the Question "How Fast Does Time Pass?"', Bradford Skow worries whether this minimal account of change is adequate to account for objective becoming (or robust passage). Skow's worry is whether for time to genuinely pass, it must undergo a more robust change than it appears to in the moving spotlight theory. To address this worry, Skow distinguishes two versions of the moving spotlight theory, and argues that by using primitive tense operators, one of these versions shows that robust passage does *not* require a robust change.[78]

Skow says that the moving spotlight theory adds an extra fact to the B-theoretic picture. This is a fact about which time is present or NOW, which cannot be reduced to a time-relational B-fact.[79] The spotlighter also claims that this fact about which moment of time is NOW (or under the spotlight) keeps changing as the NOW moves towards the future. Skow considers what the spotlight theory says about how the movement of the NOW along the time series should be understood.[80] He says that on one version of the spotlight theory, the movement of the NOW, and this changing fact about which time is NOW, can be understood by postulating an additional and distinct time parameter, which he calls supertime T. He calls this the moving spotlight theory with supertime (MST-ST).

Skow explains that in MST-ST, there are definite distances between points in supertime, and these make it isomorphic to the real time series. He then says that 'no time is NOW "absolutely"; instead, a time is NOW only relative to a point in supertime.'[81] The idea here is that the movement of the NOW is explained by saying that the NOW is at t_1 relative to supertime T_1 and the NOW is at t_2 relative to

[78] We should note that Skow has since amended this view slightly; see Skow (2015).
[79] Skow (2011), p. 3
[80] Skow (2015), p. 46.
[81] Ibid., p.13.

supertime T_2. So the NOW is said to move into the future because at later points in supertime (e.g. T_2 and T_3), later instants of time (t_2 and t_3) are NOW.' Skow notes some difficulties with the idea of an additional time series; first, that supertime is ontologically extravagant; and secondly, that it is really just the B-theory with two time dimensions. However, Skow does not engage with these objections, as he only thinks of supertime as a metaphor.[82] Instead, he turns his attention to the second version of the moving spotlight theory, as he says the above complaints do not apply to it.

This second version of the theory, which Skow calls the moving spotlight theory with primitive tense operators, or MST-PT, does not postulate an additional supertime. Instead, primitive tense operators merely mimic these supertime results. (For example, Skow says 'MST-PT uses primitive tense operators and the (monadic) property *t is NOW* to do the work that supertime and *t is NOW relative to s* [a point in supertime] do in MST-ST.') The important difference is that on MST-PT the NOW does not become a relative thing, as it did in MST-ST; instead, the NOW is a 'fundamental monadic property of instants of time.'[83] The basic idea here is that there is only one time that is NOW (or absolutely present), but we can explain the movement of this NOW into the future by saying that 'it *will be the case that* a later time is NOW; and *it was the case that* an earlier time is NOW.'[84] So the facts about which time is NOW are non-relative facts.

Skow adds some more detail to explain how these primitive tense operators are metric operators, which mimic supertime. For example, he says that 'for every positive real number *r*, there are primitive tense operators 'It will be the case that in *r* superseconds...' and 'It was the case *r* superseconds ago that....'[85] Skow explains that he uses the term 'supersecond' instead of 'second' at this *fundamental* level in order to explain the rate at which the Now moves; which he says is one second per supersecond. The point here is that these metric tense operators are *primitive*, so for any moment that is *r* seconds earlier- or later-than the time that is NOW, we analyse this in terms of primitive superseconds, and *not* in terms of some additional dimension of time, such as supertime (and supertime-seconds). Skow says that one advantage of this is that we do not have to think of some second-level of time

[82] Skow says that he thinks the idea of supertime is nonsense. Skow (2015) p.47.
[83] Skow, Ibid, p. 15.
[84] Ibid.
[85] Ibid.

passing, or explain how fast this second-level passes, which would involve a regress of postulating yet more time-levels.

Skow is aware that some people might object to the idea of superseconds, so he discusses ways of formulating the theory without using metric tense operators. That is to say, just using standard primitive tense operators 'it will be the case' and 'it was the case'. Skow thinks that this can be done, but he says it is a merit of MST-PT that it can explain the rate of passage as one supersecond per second. In contrast, on the standard operator approach, the rate of passage can only be explained as one second per second, which some people claim is not a rate at all. Skow seems to agree with this objection, as he says that he is not sure if he understands such theories that explain the rate of passage as one second per second. Skow therefore concludes that this version of the moving spotlight theory *can* be understood in such a way as to provide a robust account of passage, without needed to provide a robust account of change.

3.7.3 Problems with the Moving Spotlight Theory

In his discussion of Skow's account, Oliver Pooley suggests that it is 'deeply problematic'. According to Skow, the primitive tense operators in MST-PT, which rely on superseconds, only mimic the points in supertime. However, Pooley questions whether Skow's MST-PT really does avoid postulating a second time series. To explain this worry, Pooley contrasts MST-PT with presentism. He says that in the case of presentism, genuine change is explained by facts about how things are *now*, and how they *were* or *will be*. So the primitive tense operators work by combining the tensed facts about how things are *now*, with tensed facts that are *not now true*, but *were* or *will be* true. Hence Pooley says, 'one simply cannot accept all the present, tensed truths without accepting that what is true undergoes genuine change.'[86] Pooley's point here (in favour of the presentist account) is that the presentist's picture of reality is not like a block with a privileged centre; rather, for the presentist, the viewpoint from the *ontologically* privileged absolute present captures everything that *is*, *was* and *will be* true.

Pooley says that in Skow's moving spotlight theory (understood as MST-PT), the primitive tense operators used to explain change and passage, work differently from

[86] Pooley (2013), p.9. This is precisely what Fine denies that presentism can do, which is why Fine claims that presentism cannot account for change. So, Pooley is disagreeing with Fine here.

the presentist's primitive tense operators. For the spotlighter, parts of the domain which are no longer under the spotlighter do not correspond to how things *were*; rather they are how *concretely existing* past times *are*. The spotlighter's primitive tense operators mimic supertime, in that they appeal to times that are *r* superseconds earlier- or later than NOW. However, from the perspective of supertime (which they mimic), objects located at different times are *always* as they are at those times. For example, Pooley gives the example where he stands at t_0, sits at t_1, and stands at t_2, and says that from the perspective of every point in supertime, it is always true that he is located in these ways at those times (standing at t_0, sitting at t_1, and standing t_2). So he says that if T_2 is held to depict the absolute facts, and hence that t_2 is held to be present, how should the spotlighter understand the claim 'I sat down' uttered at t_2?

Pooley says that this claim (*I sat down* uttered at t_2) can be understood in two ways. First, it can be made true by how reality is simpliciter (from the perspective analogous to the that of T_2). He says this is undesirable, as the spotlighter (unlike the presentist) does not understand all past and future talk in terms of how reality 'currently' is.[87] Alternatively, it can be made true by the primitive *metric* tense operators. In this case, Pooley suggests that the t_2 utterance of 'I sat down' might mean that at an earlier perspective in supertime (T_0) I am standing, and at a slightly later perspective in supertime (T_1) I am sitting. Pooley says, 'in other words, the utterance is currently true because of primitive tensed facts like the following':

- WAS_{10m} (*P*)

In English: it was the case 10 minutes ago (t is present and I am standing at t)

- WAS_{9m} (*P*)

In English: it was the case 9 minutes ago (t' is present and I am standing at t') [88]

The problem here, says Pooley, is that it becomes unclear what the role of these existing but non-present times are, as MST-PT makes how most of reality *is* (i.e. is at non-present times) irrelevant to our ordinary tensed talk. Hence Pooley concludes that the moving spotlight theory is not plausible. On the one hand, it

[87] Ibid., p. 12.
[88] Ibid.

holds that reality is constituted by concretely existing things which are certain ways at past, present, and future times, and on the other hand, it makes these contents of past and future times irrelevant to our ordinary tensed talk.

3.7.4 Cameron's Moving Spotlight Theory

There are other problems with the moving spotlight theory. To consider these, we turn to Ross Cameron's moving spotlight theory, as Cameron claims that his version of the theory avoids the problems faced by the standard view. Like the standard version of the moving spotlight, Cameron holds that all temporal entities exist permanently and *concretely*. However, Cameron tries to spell out what is involved in existing 'concretely' in such a way that it makes his theory more plausible than standard versions of the theory. We should note that like many A-theorists, Cameron discusses A-characteristics in terms of monadic properties rather than relations.

In his book *The Moving Spotlight*, Cameron identifies the following problems with standard versions of the moving spotlight theory:

- It does not escape McTaggart's paradox.
- It fails to give an adequate account of *what it is* for the present to be privileged, or of what 'presentness' is.
- It cannot provide evidence of how we can know that 'this' is the present time.
- It does not give a satficatory account of the open future.

Cameron begins by explaining why McTaggart's paradox is a problem for standard versions of the spotlight. Cameron accepts that if we assume time is not circular, then McTaggart is correct to hold that past, present, and future are incompatible properties. He also accepts that the natural objection (the objection that things only have these A-properties *successively*) leads to an infinite regress. However, Cameron claims that this infinite regress is *benign.* This is because he holds that at each stage the explanation is successful, despite the fact that at each stage a new demand for explanation is generated.[89]

[89] This is in contrast to the majority view.

Nevertheless, Cameron identifies a different reason why the non-presentist A-theorist does not escape McTaggart's paradox. He says this is due to a principle he calls 'Past Record':

- *Past Record*: If something was the case, then it *is* the case in the past[90]

Cameron says that the presentist will not accept *Past Record*. For the presentist, the past does not exist; hence nothing *is* the case in the past, rather things *were* the case. However, he says that it looks as though the moving spotlighter should accept *Past Record*, as she accepts that the past exists.[91] Hence it looks as though what happened in the past, such as Caesar crossing the Rubicon, continues to be part of reality. Cameron explains that according to *Past Record* 'because there were dinosaurs, there are dinosaurs – where the "are" is to be understood atemporally, describing how reality is across time'.[92] Likewise, the "is" in *Past Record* is atemporal in this sense. Cameron also points out that accepting *Past Record* is typically held to be an advantage for the non-presentist A-theorist because, unlike the presentist, it provides them with a way of explaining what makes claims about the past true.

However, Cameron says that *Past Record* makes the following McTaggartian problem for the moving spotlighter. For example, given eternalism, if M is now present, then M was future. So, Cameron says that according to *Past Record*:

> M's being future is (atemporal "is") the case, in the past. But M is now present, and how things are now is also part of how things atemporally are across time. So both M's being present and M's being past are the case, atemporally.[93]

According to Cameron, this means that when we ask what M is like *simpliciter*, we find ourselves under pressure to say that M is both present and future *simpliciter*, which it cannot be. For example, consider the tomato that was green, but is now red. How is the tomato *simpliciter*? Unless one is a presentist, how a thing is *simpliciter*, does not mean how it is *now*; rather it means how that thing is across

[90] Cameron (2015), p.64
[91] He adds that the same is true for the growing blocker, as far as the past is concerned, although she would not accept its future equivalent.
[92] Ibid, p.64
[93] Ibid. p.65.

time. So although the tomato is green and not-green at different times, the problem is it cannot be both green and not-green simpliciter.

Presented in this way, Cameron says that McTaggart's argument is similar to the problem of temporary intrinsics. So he considers whether the standard responses to that problem can help. As we have seen, these responses aim to avoid the contradiction by saying that properties are disguised relations to time, or that they are properties belonging to distinct temporal parts of a persisting object. Cameron explains the problem as follows:

> Just as I can ask what height I am *simpliciter*, so I can ask whether Caesar's crossing the Rubicon is past *simpliciter*. Not past *then*, not past *now*, just whether it is past. And surely the A-theorist must answer that it is past *simpliciter*. It is before the objective now, thus it is past – end of story. But it *was* past, so by *Past Record* it must *be* present in the past. But the only place that it *is* is in the past, so it must be present *simpliciter* as well. So it is past *simpliciter*, and it is present *simpliciter*. But those are incompatible properties![94]

Cameron explains that we cannot escape the paradox in the ways used to solve the problem of temporary intrinsics. For example, we cannot say that there is a temporal part of Caesar's crossing the Rubicon that is past, and another temporal part that is present, because the whole event is past. But it is not past *simpliciter*, because by *Past Record*, it is present in the past; so it seems that it is past and present *simpliciter*, which it cannot be. However, Cameron says that trying to escape the paradox by saying that A-properties are disguised relations (or that they are properties only had in a t-ly way) does not work either. This is because doing so would be to abandon the A-theorist's claim that only one time is uniquely and objectively present.

Cameron notes again that the presentist does not have these problems. For example, the presentist denies that times other than the instantaneous present exist. Hence for the presentist, it never is the case that reality contains the same thing located at two different times, instantiating incompatible properties at those times. Rather, how M is now, is how M is *simpliciter*, and how M was is not part of how

[94] Ibid., p. 67.

reality is now. So the presentist denies that there is a comparison to be made between facts *across* time, because non-present facts do not obtain. So when the presentist uses primitive tense operators, such as 'it was the case that…', Cameron says 'she denies the claim that its truth-conditions are given by "it was the case in the past that… ".'[95] In contrast, the spotlighter faces the above problem, because as an eternalist she is making a comparison between facts across time. Hence the spotlighter accepts that how things were (and how they will be) is part of how reality is. That is to say, how something *was*, is part of how reality *is* in the past.

Cameron's solution is to give up *Past Record*. According to Cameron, unlike standard versions of the theory, the moving spotlight theory should *not* be construed as an *enriched B-theory*; that is to say, a B-theory of co-existing events, with the addition of an objectively privileged present moment, which somehow moves along the time series. Instead, the moving spotlight theory should be thought of as an *enriched presentism*. The idea here is to accept the presentist's claim that how things are *simpliciter* is how they are *now*, but to augment this by adding another claim; that non-present entities are also some way *now*. This is why Cameron distinguishes his theory from presentism.[96] Cameron claims that an advantage of his spotlight theory (over presentism) is that it is rich enough to provide truthmakers for claims about non-present entities, and an advantage (over the standard spotlight theory) is that it avoids the problem of temporary intrinsics because it accepts that the only way things are *simpliciter* is how they are now. Like presentism, it avoids McTaggart's paradox, and it can provide a more robust account of change and passage than the standard version of the moving spotlight. Let us consider some of the details of Cameron's theory.

The key claim of Cameron's spotlight theory is that while how things are *now* (in the present) is how they are *simpliciter*, nevertheless past and future entities *are some way* now. So in what sense are past and future entities *some way*? First, let us consider how Cameron distinguishes his theory from presentism and the standard spotlight. Cameron explains that:

- The presentist does not admit non-present entities, because for the presentist, they are not among the things that there unrestrictedly are. So

[95] Ibid. p. 68.
[96] The presentist holds that only present things exist and are some way.

for the presentist, our first-order quantifiers (some and all) range solely over presently existing entities. Non-present objects are not *some way*.

- The standard spotlighter does admit non-present entities, because to be non-present is simply to be located at other times.

- Cameron's spotlighter admits non-present entities because it helps with the project of truthmaking to say that non-present things are now a certain way. However, he says 'this will not let the spotlighter say what it is for something to have been the case in the past, but it will let her say what makes it the case that each historical truth was the case.'[97]

So it seems that saying how non-present things are *now*, involves being able to say 'what makes it the case that each historical truth was the case'. So what does this mean? According to Cameron, what it does *not* mean is that presently existing things have Lucretian properties. For example, the view known as 'Lucretian presentism' maintains that present entities have past-orientated properties, and these are used to provide truthmakers for historical truths.[98] Lucretian presentists claim that what makes my assertion 'I used to be 4ft tall' true is my presently having the property of *having been 4ft tall*. Cameron says that critics of Lucretian properties claim that they are 'suspicious' properties, but struggle to say exactly what is wrong with them. What Cameron finds wrong with Lucretianism is that having the property of *having been 4ft tall* is not part of the intrinsic nature of a thing *now*. What he wants for his spotlight theory is to enrich presentism enough to make it the case that past and future properties are part a thing's intrinsic nature *now*. However, Lucretianism only tells us that such properties *were* part of a thing's intrinsic nature.

Instead, Cameron appeals to Josh Parsons' notion of distributional properties, which say how a thing is across space. For example, Parsons says that an object that is black and white and polka dotted has a certain distributional property; namely, being white with black spots (in a certain way).[99] Cameron adapts this idea and says 'a *temporal* distributional property says how a thing is across time, just like *is polka*

[97] Ibid. p.133.
[98] Bigelow defends Lucretian presentism. We examine this position in the next chapter.
[99] Ibid. p.137.

dotted says something about how a thing is across space.'[100] Cameron says that for any persisting entity, it has the temporal distributional properties it has throughout its life, plus one other property, age, which is the property that tells us how far along a thing's life that thing is. Cameron claims that temporal distributional properties and age enable us to explain 'how facts concerning how present things used to be and will be are made true by the way things are now.'[101] For example, Cameron's being 4ft tall is a past event 'M'. But since Cameron denies *Past Record*, M is not present in the past; so the presentness of M is not part of reality. However, reality makes it the case that M *was* present. This is because the way Cameron is now, plus his age, makes it the case that when he was younger he was 4ft tall.

Suppose we grant that the way a *present object* (such as Cameron) is now, is what makes it true that how things about Cameron were (or will be) are *now* part of reality. But how does Cameron's theory work in the case of non-present entities, such as Caesar? According to Cameron:

> You do not need to be located in the present in order to presently be a certain way; it simply needs to be now true that you exist.[102]

He says this is because:

> Each thing bears a location relation to some four-dimensional region of spacetime; and this relational fact is one that always obtains, because the relation fixes not where the thing is at a time, but where it is *across* time.[103]

So, on this picture, Caesar exists now and is located in the past. And part of the way Caesar is *now*, involves Caesar bearing a certain location relation to a certain part of the manifold, which fixes how Caesar is across time. Moreover, in addition to having this 'location relation', Caesar is now a certain way *simpliciter* because of the temporal distributional properties he always has, plus the age he is now, which continually increases as time passes. Cameron states that this gives his theory an advantage over presentism, as the presentist cannot say that non-present things exist and are now some way.

---

[100] Ibid.
[101] Ibid., p. 140.
[102] Ibid., p.145.
[103] Ibid.

However, when Cameron continues to explain how Caesar is *now*, his theory becomes problematic. For example, he explains that Caesar used to have a certain height at one time, and a different height at another. Hence Cameron says:

> He had those heights because of the different ages he had at each time in combination with the same temporal distributional property; and that he had those properties at those times is made true by his *now* having the temporal distributional property and age he has – the properties he has *simpliciter*. And Caesar's now having those properties makes it the case that now he has no height.[104]

So, on the one hand, Caesar is a concrete individual who exists now and *is some way*, because he has the temporal distributional properties he always has, a location, plus an age, which follows from these. On the other hand, Cameron denies that Caesar has a height, shape or mass, or any of the other properties we normally associate with concretely existing things.

Cameron admits that this is a cost of his theory. For example, he says that there is a very strong intution to think that:

> If a concrete thing exists now, it must now be some height, some mass, some 3D shape, etc.[105]

Despite this, Cameron defends his view by claiming that most other theorists are in no position to push this objection. For example, he says that the perdurantist also denies that concretely existing individuals have properties such as shape and mass. This is because the perdurantist only attributes the having of such properties to distinct temporal parts of (so-called) perduring worms. Similarly, the eternalist-endurantist who holds that properties are disguised relations, also denies that persisting individuals have properties such as mass, height and shape.[106] Cameron also rejects 'Williamsonian presentism', such as Sullivan's eternalist A-theory (discussed below), according to which, all past, present and future objects exist, but only present objects exist *concretely*. On this eternalist-enduarntist view, non-

[104] Ibid., p.149.
[105] Ibid.
[106] Ibid.

present objects exist, but do so as 'merely logical existents', which have no location, and are not alive. Since Cameron takes being concrete to be part of what it is to exist, he says that this ontology is an even less attractive option than the standard spotlighter's.[107] Cameron admits that the presentist has an advantage over other theories *in this respect*; but he adds that because presentism has other defects (e.g. its lack of truthmakers for non-present objects), it does not have the overall advantage as a plausible metaphysical theory of time.

So although Cameron acknowledges that his own theory has the *unintuitive* result that non-present objects cannot have properties like height, shape and mass, he claims that his theory has the advantage of being able to combine eternalism and endurantism. This is because his theory allows that things have their properties *simpliciter* when (and only when) they are present. He contrasts this with the standard spotlight view, which holds that all past, present and future objects have their properties *simpliciter* (and hence cannot avoid McTaggart's paradox). He also contrasts this with B-theoretic-endurantism, which is a position he finds untenable. For example, Cameron says that B-theoretic-endurantism cannot account for genuine change, and when it explains 'apparent change' it collapses into perdurantism; hence 'endurantism requires the A-theory.'[108]

Cameron explains the other advantages his theory has over the standard spotlight theory. First, he claims that his theory can adequately account for *what it is* to be present, or what 'presentness' is. The standard spotlight just postulates that being present involves being under the spotlight, but gives no real content to what that amounts to, as all past, present, and future things never lose or gain any other intrinsic properties. Cameron says that this just amounts to adding a primitive property of things (associated with being under the spotlight) on to the B-theory picture. On Cameron's view, how things are simpliciter (globally) is not how they are at any other times. For example, nothing ever has the age it has at one time, at any other time. Moreover, Cameron explains that why he is (now) 6ft tall is not because he is under the spotlight; rather it is his being 6ft tall *simpliciter* that explains what is for the spotlight to be shining on him. Hence in Cameron's spotlight theory, presentness is just the way things are *simpliciter*; and how things are *simpliciter* (their temporal distributional properties, location, and current age) makes the difference between how things are, were, or will be.

---

[107] Ibid., p.147.
[108] Ibid., p.156.

In this way, Cameron is able to give content to the idea of 'being present', and in doing so, he claims that his spotlight theory gives a more robust account of change than the standard view. This is because as time passes, the age of concrete objects not only increases, but they also lose and gain certain other non-essential properties, such as mass, height, shape, when they cease to be present.

A final advantage Cameron claims for his theory is that it can give a better account of the asymmetry between the past and the future. Cameron rejects branching time accounts of the open future, because he claims that while such accounts can explain the semantics of future contingents, they do not give a satisfactory account of the underlying metaphysics of this picture.[109] In contrast, Cameron explains that his theory allows that the way reality is now is such that it is indeterminate whether some fact x about the future obtains. For example, he says 'there is some way that things will turn out, it is just indeterminate *how* things will turn out.'[110] Cameron claims this preserves bivalence, and he contrasts this with the growing blocker's account of the open future, which is the view that reality is such that there may be *no fact of the matter* whether fact x obtains.[111] Cameron says that his account of the open future is preferable, since his account provides him with what he needs to say what makes statements about the future true or false. For example, Cameron says that if he predicts that it will rain tomorrow, his spotlight view has an extensive enough ontology to make that prediction true or not. Hence he says 'one way or another, there is a fact of the matter. But this is perfectly consistent with it being indeterminate w*hich* fact of the matter obtains.'[112] In contrast, the growing blocker typically has to say that there is no fact of the matter, which Cameron finds unintutive.

Cameron's moving spotlight theory is thus a thorough attempt to try to systematize many of our intuitive ideas about time. This is why he describes it as 'enriched presentism', in a contrast to the 'enriched B-theory' of the standard spoltlight. I agree that Cameron's theory does present a more robust account of change, and of what it is to be present (understood as being a certain way *simpliciter*), than the standard spotlight theory. Cameron acknowledges many of the advantages of

[109] Ibid., p.180.
[110] Ibid., p.201.
[111] Ibid., p.173.
[112] Ibid., 195.

presentism, but his main metaphysical objection to presentism is that it lacks the resources to give a satisfactory account of truthmakers for past and future truths. However, it is Cameron's own account of the nature of these non-present objects, which he claims gives him an advantage when it comes to truthmaking, that I find the most problematic.

For example, we have seen that Cameron avoids McTaggart's paradox, by 'accepting the presentist's thesis that what is the case *simpliciter* is what is now the case'. And he says that this means accepting that 'what was and will be the case has no reality at all.'[113] A consequence of this is that in order to account for truths about how things were or will be, Cameron (like the presentist) must say that how things were or will be, are made true by things *now* being a certain way. However, *unlike* the presentist, Cameron admits the existence of non-present entities. He claims that his theory of truthmaking works better (than the presentist's) because it allows that 'some non-present things are nonetheless some way *now*.'[114] The idea here is that a past thing, such as Caesar, is located in the past, and that is what makes true the tensed truth that Caesar once existed. That Caesar exists also makes true the non-qualitative facts concerning Caesar, such as his spatio-temporal location and essential properties, such as being human. Thus according to Cameron, Caesar is *now* a certain way *simpliciter*, because Caesar now has a certain age *and* the temporal distributional property that makes true all the facts about how Caesar was at the various times at which Caesar was present.[115] These properties include, being such that he crossed the Rubicon and was an emperor *n* number of years ago.

What I find most troubling about Cameron's account is the dubious nature of these existing but non-present entities. According to Cameron, Caesar exists concretely, is human, and has a location, but he has no height, mass or shape. This is a strange way to exist concretely. Moreover, if an individual thing exists in this way (is concrete, human, and located in the past), it is hard to accept that that thing is not some way *in the past*. Cameron bases his argument for avoiding McTaggart's paradox on the claim that he gives up *Past Record*; and hence gives up the idea that non-present things are some way in the past or future. Thus Cameron denies that Caesar is some way in the past, because he denies that Caesar *now* has

[113] Ibid., p.132
[114] Ibid.
[115] Ibid. p.148.

certain intrinsic properties. But in the case of past things, where there is no indeterminism involved concerning what was the case, it is hard to see how something that exists in the way Cameron describes (being concrete, human, and having a location), is not some way in the past.

Cameron describes his account as an *enriched presentism*, but it is a bit rich (no pun intended) to describe it as such, since his theory violates the core claim of presentism; namely that only present objects exist. Cameron is trying to distinguish between existing and being some way, but I do not find this convincing, given his account of what it is for non-present things to exist. I therefore think that Cameron would be better off becoming a presentist, and adopting one of the options open to presentists to account for truths about non-present (and non-existing) things.

To sum up. Both versions of the moving spotlight we have considered are trying to give an A-theoretic account of change. That is, they are trying to provide an account of change in terms of how the world objectively *is*, *was*, and *will be*, which cannot be reduced to variation between permanently true tenseless B-facts. As we have seen, both these versions have problems. We now turn to Meghan Sullivan's eternalist A-theory, which she claims avoids the problems of Cameron's theory, as she denies that non-present entities are concrete.

3.7.5 'Williamsonian presentism'

The position known as 'Williamsonian presentism' is an eternalist A-theory, which holds that past and future entities exist permanently, but, unlike presently existing entities, they are non-concrete. The view I describe is Sullivan's version of (so-called) Williamsonian presentism. Sullivan is involved in a bigger project, which is to develop a version of the A-theory that does without temporal operators.[116] Her reasons for this are explained below. Sullivan describes her view as the 'temporal analogue of Williamson's recent work in modal logic.'[117] I shall therefore begin by explaining Williamson's view.

[116] In this respect, Sullivan differs from Williamson, because Williamson treats modal operators as primitive.

[117] In discussion of her "An A-theory without Operators" *PERSP Workshop on the As and Bs in the Philosophy of Time.* Barcelona 19-20, September 2013.

3.7.5.1 The modal case: Williamson's necessitism

In *Modal Logic as Metaphysics*, Williamson focuses on the modal dispute between necessitism and contingentism. However, he draws some interesting parallels between the modal dispute and the dispute between metaphysical theories of time. Regarding the temporal dispute, Williamson abandons the labels 'eternalism' and 'presentism', as he finds the dispute between eternalism and presentism 'hopelessly muddled'.[118] Instead, he prefers the labels 'permanentism' and 'temporaryism' as he believes they make the debate about the existence of temporal entities clearer. (Nevertheless, temporaryism typically corresponds to the views on existence held by presentists and growing blockers, as they have a varying domain, consisting of temporarily existing entities; and permanentism typically corresponds to eternalism, as eternalists have an unvarying domain of permanently existing entities.) The modal-temporal parallels Williamson draws are between necessitism-permanentism on the one hand, and contingentism-temporaryism on the other.

Williamson argues in favour of necessitism; the claim that necessarily everything is necessarily something.[119] This is because Williamson accepts the Barcan formula, which he says is a schema with many instances.[120] For example:

- BF 1: $\forall x \Box F \rightarrow \Box \forall x F$

In English: if for all x, necessarily x is F, then necessarily for all x, x is F.

Williamson says that contraposed in existential form we can understand the Barcan formula as:

- BF 2: $\Diamond \exists x F \rightarrow \exists x \Diamond F$

In English: If possibly, for some x, x is F, then for some x, possibly x is F.

In this form (BF2), we can see how the Barcan formula is very counterintuitive, as we naturally want to affirm the antecedent, and deny the consequent. For example,

---

[118] Williamson (2013), p.25.
[119] Ibid., p.14. Williamson stresses that here the quantifiers 'everything' and 'something' should be understood as absolutely unrestricted.
[120] Williamson explains that the Barcan formula raises fundamental issues about the contingency or necessity of existence in modal logic.

I do not have a younger brother. However, I want to say that it is possible I could have had a younger brother. And I can wonder whether he would have looked like me, or like my mother, and so on. But I do not want to say just because I could have had a younger brother, that *there is* such a thing as my possible younger brother, which is not among the things that there actually are. To affirm this (the consequent of BF2) is to affirm the existence of a merely possible person. And this raises questions about what sort of thing this 'merely possible person' could be, if he is not among the things that there actually are.

Despite its counterintuitive nature, it turns out to be extremely difficult to develop a modal logic which denies the Barcan formula. (A discussion of this is beyond the scope of this thesis.[121]) Faced with the difficulties in denying the Barcan formula, there are various options. We consider two of these in the next chapter on presentism; Prior's rejection of the Barcan formula, and the neo-Meinongian approach (which involves accepting that various things are true about my possible younger brother, even though he does not exist). As Williamson does not want to take either of these options, he accepts the Barcan formula and affirms that anything that can possibly exist, does exist. This is understood as affirming the necessary existence of everything. Williamson admits this involves an 'ontological inflation', but he recommends that the necessitist should accept it, and argue that it is harmless.[122]

Williamson explains the existence of merely possible things in the following way. Consider the possible child that Wittgenstein could have had. (Wittgenstein had no actual children.) According to Williamson, this merely possible person is not an actual person; however, it is an actual object, which exists non-concretely. This means it has no spatiotemporal location in the actual world, and it is not alive. So according to Williamson there is a 'contingently non-concrete object' that is a possible child of Wittgenstein, which could have been a child of Wittgenstein.

3.7.5.2 The temporal case: permanentism

Williamson takes it that just as the fundamental structure of *modal* things is fixed (everything that possibly exists, does exist), the fundamental structure of *temporal*

[121] For a detailed discussion of why Kripke's attempt to invalidate the Barcan Formula fails, see Williamson (2010), pp. 51-74.
[122] Williamson (2013), p.27.

things is also fixed. Hence, the natural temporal analogue of the Barcan formula is permanentism:

- Permanentism: whatever exists at anytime, exists at all times.

We can understand this as meaning that *always, everything always exists*. While this obviously suggests eternalism, Williamson does not interpret permanentism in a B-theoretic way. Instead, he takes it that just as possible things necessarily exist but do so non-concretely, past and future objects exist at all times (or permanently), but they do so *non-concretely*. This suggests an A-theoretic way to understand eternalism, which differs from the moving spotlight view, which holds that all temporal entities always exist *concretely*. Let us now see how Meghan Sullivan explains this in her 'Williamsonian' eternalist-A-theory.

3.7.5.3 Sullivan's Minimal A-theory

Sullivan is an eternalist A-theorist who characterizes the A-theory in the following way. Sullivan says that A-theorists typically claim that objects persist by *enduring*. Thus, in order to explain change and the passage of time, A-theorists claim that enduring entities only have their A-properties *temporarily*. That is to say, they gain and lose their A-properties as time passes. Sullivan calls this the principle of 'A-property change', which she defines as follows:

> A-Property Change: There is at least one enduring object, x, and at least one non-time-relational property, C, such that x is C only temporarily.[123]

Sullivan acknowledges that different A-theorists disagree as to how A-property change is satisfied. For example, for presentists and growing blockers, this typically involves ontological change, whereas eternalist A-theorists deny this. However, she says that what *unites* all A-theorists is the claim that 'at least some kind of change in the world cannot be explained as mere variation in a spacetime manifold.' In contrast, she says that B-theorists 'explain *all* change as variation in the spacetime manifold.'[124] (Sullivan takes B-theoretic accounts of change to be the relational view and the temporal parts account.)

---

[123] Sullivan (2016), p.2.
[124] Ibid., p.3.

Sullivan also endorses propositional temporalism (the idea that propositions can change truth-value), and she says that this is what makes the A-theory dynamic. She describes this dynamic component as follows: 'the most accurate description of reality is subject to change.'[125] Hence, what is true now, has not always been true, and will not always be true. Sullivan says this is what B-theorists deny. For example, B-theorists maintain that *all* tensed truths are reducible to tenseless truths, which are permanently true.

As an eternalist, Sullivan claims that all past, present, and future objects exist *permanently*. However, she distinguishes her eternalist A-theory from the moving spotlight, in the following way. According to Sullivan's theory, only present objects are *concrete* objects, which have their interesting properties, like being located in spacetime, or being alive, or having a colour, etc. She claims that when non-present objects recede into the past, they stop having their core properties, such as being located in spacetime, or being alive, or being red, and so on. Following Williamson she says that non-present objects are non-concrete objects. They have merely past properties, and have become merely past objects. So non-present entities exist as merely logical existents.

Sullivan distinguishes her A-theory from 'standard' A-theoretic accounts in another way. She says that A-theorists standardly assume that their theories *require* a tense logic with Priorian tense operators; this is in order to formalize their views about change, the types of properties they think are instantiated, and (for presentists and growing blockers) their views about temporary existence. Moreover, she says that these primitive tense operators are held to 'reflect a primitive "tensed" structure of reality.'[126] Sullivan challenges these assumptions for the following reasons. First, she challenges the idea that tense-operators reflect some *metaphysically fundamental* aspect of reality, claiming that it is obscure what this is. Secondly, she challenges the idea that primitive tense operators are indispensible as a means for A-theorists to express their views about property change. Thirdly, she challenges the idea that primitive tense operators are indispensible as a means for expressing the A-theorist's claim that some propositions are only temporarily true. Finally, she challenges that idea that primitive tense operators enable 'temporaryists' to express truths about merely past and merely future objects. This is because she challenges

[125] Ibid., p. 21.
[126] Sullivan (2016) p,1.

the claim that tense operators block (unwanted) ontological commitment to such objects.

To avoid these problems she finds with the 'operator approach', Sullivan proposes an alternative 'operator-free' logic. Here, I focus on giving a brief outline of the metaphysical picture that her operator-free A-theory gives us.[127] Sullivan's proposal involves enriching the standard stock of predicates, which express what she calls 'core' properties (such as, 'is alive', 'is located', 'is red'), with new predicates that express the past and future analogues of these core properties – and which result from applying tense-modifiers to the original stock of predicates. Sullivan distinguishes two versions of this account; one in which the predicate modifiers are '*simple*', and one in which they are '*expanders*'.[128] As Sullivan prefers the expander approach, I shall focus on that version here.

According to Sullivan, the predicates that express core properties, such as 'is running' or 'is President', are either present tensed or tenseless. Hence she says 'at least some of these [core] predicates do not have time-slots, and they denote properties that are *not* held relative to a particular time.'[129] Sullivan then proposes using 'was' and 'will' as new predicate modifiers. She says these do two things. First, they modify the tense of core predicates. For example, she says they 'act on a stock of tenseless or present-tensed predicates like "is running" or "is President" to yield past or future-tensed predicates like "was running" or "will be President".'[130] Secondly, they take us to new predicates that are time relations. For example, Sullivan says they 'expand the arity of the predicate they modify by one argument place – a time slot.'[131] Thus, if X is President but was not always President, we can say that X exemplifies the core property *is President*, but also the past analogue relational property of being *not-President at t* (where *t* is earlier than the time at which X exemplifies the core property.)

Sullivan therefore claims that A-theorists do not need tense operators in order to express change. For example, on her operator-free theory, the A-property change

---

[127] I sidestep the logical and linguistic details of her account.
[128] Sullivan calls the first approach 'simple', because the predicate modifiers do *not* change the arity of the predicate they modify. However, as this results in awkward ways of formalizing certain sentences, she prefers the 'expander' approach. See Sullivan (2106) pp. 17-18.
[129] Ibid., p.20.
[130] Ibid., p. 18. For the formulation rules for these predicate modifers, see pp. 13-18.
[131] P.17. Here the argument place corresponds to a time at which the property either was or will be possessed or not possessed.

principle is satisfied in the following way: there is an enduring object X, which has a core property (is President), and lacks either the past or future time analogue of that property; therefore it has the property, *was not-President at a time*.[132] Here, the property denoted by the core predicate is a *temporary* property (being President). And since the temporary property need not be time-relational, only the past and future analogue properties are time-relational. Hence Sullivan says 'tense modifier logic can express a consistent A-theory without collapsing into a version of the relational B-theory.'[133]

Sullivan considers three possible objections to her operator-free A-theory. The first is the objection that all temporal properties, *including* core properties, should be treated as time relations. In response, Sullivan says that non-time-relational core properties are indispensible to the A-theorist. For example, she explains that propositional temporalism is central to the A-theorist's explanation of the flow of time and change. Hence, she says that if 'all changing properties are fixed relations between an object and a time, then the most accurate description of reality never changes'.[134] So this objection would count as an objection against *all* A-theories. However, Sullivan denies that propositions expressed by sentences such as 'X is President' are incomplete (and thus need a time-context to complete them). Hence she denies that core properties should be treated as time relations.

The second objection is what she calls the *too many properties objection*. According to this objection, Sullivan's A-theory is not dynamic enough, because it only expresses how 'an object varies with respect to two distinct properties – the core property and the past or future analogue property'. So, the objection here is that rather than explaining how a *single* object changes by directly instantiating the changing property, in the operator-free account distinct temporal parts stand-in as the instantiators.[135] Sullivan's response is that one should not take this objection too seriously. She says this is because there is no reasonable common belief as to *how* things persist, and change, and have properties at times; and 'every theory of change … has a surprising entailment.'[136] I find Sullivan's response acceptable. This is because on her account, the instantiation of concrete core properties is *temporary*; whereas in the B-theory, the instantiation of *all* properties is permanent.

---

[132] Ibid.
[133] Ibid.
[134] Ibid., p.21.
[135] Ibid., p.22.
[136] Ibid.

Moreover, the temporal analogue relational properties (ascribed to distinct temporal parts, which stand-in as the instantiators) are merely past or future properties, belonging to non-concrete objects. In the B-theory, *concrete* properties are (permanently) instantiated by *concrete* temporal parts of objects. So Sullivan's account describes a more genuine account of change than the B-theory.

The third objection is that past and future analogue properties are incoherent. Sullivan says that A-theories typically assume that the present time is fundamental; and based on this assumption, they maintain that 'present facts ought to ground all other facts about an object'. [137] However, in her theory, present facts do *not* ground other facts about an object. (For example, the fact that X is President does not ground the fact that X was President.) So the objection is that temporal analogue properties are either ungrounded, or grounded in past or future facts about an object, which violates the assumption that the present is fundamental. Sullivan's response is to *deny* that the present is fundamental. She says that A-theorists hold there is a fundamental *distinction* between the present and other times, but this does *not* necessarily mean that the present is more fundamental. Hence Sullivan says that while analogue properties are *similar* to core properties, this does not mean that they are grounded in core properties. Rather, there is a primitive similarity between core properties and analogue properties; just as *is drinking* and *is apparently drinking* are importantly similar, even though the former does not ground the latter.

Thus Sullivan claims that her operator-free approach is preferable to the operator approach in three respects. First, she says that since Priorian tense operators are *intensional* operators, even though A-theorists claim that they reflect something metaphysically fundamental, it is unclear what aspect of reality intensional operators reflect.[138] In contrast, her theory uses logical devices that modify predicates, which can be 'mapped to more familiar categories like objects and properties'; hence it is clear what aspect of reality they reflect. [139] She also says that her theory has no problem dealing with 'cross-temporal relations and inferences that involve temporal anaphora'.[140] For example, sentences such as 'there were at least two distinct times when somebody named Elizabeth was Queen,' which are problematic for

[137] Ibid.
[138] For example, when the proposition *Victoria is Queen* is embedded within the scope of a tense operator, it is obscure which part of reality the embedded proposition is describing. This is because P(Victoria is Queen) does not map onto an object with properties.
[139] Ibid., p12.
[140] Ibid.

Priorian tense logic, are not problematic for her A-theory. And, most importantly for Sullivan, her theory avoids the problems Priorian tense logic inherits from modal logic. For example, the problems with the Barcan formulas, which cause presentists to adopt very complicated systems of logic to block unwanted ontological commitments to non-existent objects.

In addition to her dislike of tense operators, Sullivan says that her eternalist A-theory is preferable to the moving spotlight theory, because her theory provides a more robust account of change. As mentioned above, this is because Sullivan claims that enduring objects lose their core properties when (for example) they recede into the past, and become merely past objects. In contrast, on the spotlight theory, past and future objects still have concrete properties such as being located and alive. This seems correct. Her theory also avoids the problem of temporary intrinsics. For example, since non-present objects do not have any of their core properties, it is never the case that an enduring object has incompatible intrinsic properties at different times. This also seems correct. In a similar way, Sullivan can also escape McTaggart's paradox. For example, consider a presently existing object, such as Queen Elizabeth II. As we have seen, the problem McTaggart's paradox raises for the A-theorist is this. If Elizabeth is present, then in the past, she was future; and given eternalism, this means that she is both past and present, which are contradictory properties. On Sullivan's account, it is not the case that when Elizabeth is present, she is also past. This is because it is only when Elizabeth is present that she is a concrete object and has the property of being located in spacetime. So it is never the case that an enduring object has the property of being located any-*when* other than the transient present.

So on this view, although all regions of spacetime exist permanently, as do all objects, existence does not entail location.[141] Sullivan explains that presentists and growing blockers typically explain 'flow' in terms of 'regions of spacetime changing with respect to existence.' In contrast, on her theory, she says that the 'flow of time' is due to the fact that 'one and only one region of spacetime has a special, complex temporary property—it is the only region that figures in any (untensed) location relations. Other times were … or will be the locations of objects, but temporarily are

[141] Sullivan (2012) 'The Minimal A-theory' p, 19.

not the location of anything.'[142] I shall now consider some criticisms of Sullivan's view.

Like other eternalist A-theorists, Sullivan *describes* passage and change; however, on her account it is not clear *why* change and passage occurs. For example, she does not explain *why* the world is such that one and only one region of spacetime has the 'complex temporary property' she describes. Nor does she explain *why* only one region of spacetime is such that objects are located at it and have their other core properties, such as being alive or concrete. Sullivan says that propositional temporalism is central to her account of change, but she does not appeal to factors such as causation, or the asymmetry between the past and future, to explain why reality changes in this way. Her complaint against tense operators is that it is mysterious which aspect of reality they reflect; but I find her account guilty of being mysterious about the mechanism of change.

Another criticism is this. Sullivan says that one of her starting assumptions is the idea that existence is univocal. Thus, having a domain of permanently existing entities provides her with a straightforward way for accounting for truth and non-present entities. Sullivan sees it as an advantage of eternalist theories that they have an unvarying domain. As we have seen, Sullivan claims that tense operators are problematic when presentists and growing blockers use them to block unwanted ontological commitment to past and future things, because they inherit from modal logic the problems that are familiar in discussions of the Barcan formulas and actualism.[143] Sullivan says it is notoriously difficult to deny the Barcan formula in the modal case, and it is similarly difficult to deny the temporal equivalent. Thus she claims that her theory is preferable, because it avoids the complex and awkward logics that temporaryists have to employ.

In response to this, it is not clear how much of a problem varying domains really are for growing blockers and presentists. For example, in Prior's tense logic, he develops ways around the Barcan formula (see Chapter 4). The neo-Meinongian position we consider in Chapter 4 also provides another way to avoid the Barcan formula. Moreover, by trying to accommodate the Barcan formula and give an A-

---

[142] Ibid.

[143] That is, they face the formal challenge of assigning truth-values to formulas in worlds/at times where objects denoted in the formula do not exist. (For example, just as 'Possibly (p)' logically implies that there is (exists) a possible p, so too Past (p) logically implies that there is (exists) a past p.)

theoretic account of change, Sullivan stretches this 'univocal' notion of existence to its limits. For example, we typically think that living things exist when (and only when) they are alive, and that existence involves being located in spacetime. So the idea of existing *non-concretely* is very counterintuitive.

Sullivan's A-theory is motivated by her assumption that existence is univocal and her dislike of tense operators. Because of this, she *denies* that A-property change rests on there being some primitive tensed structure in the world, in which the present is fundamental. Instead, she claims that the fundamental *distinction* between the present and other times rests on the fact that her predicate modifiers (tense modifiers) map onto a set of entities (non-concrete entities with merely past and future properties), which are completely distinct from those picked out by unmodified predicates (concrete entities, with concrete properties). As mentioned above, although Sullivan *describes* A-property change in terms of this distinction, I find Sullivan's account of the mechanism of this change mysterious. For these reasons, I do not think that Sullivan's operator-free theory has the advantages over standard A-theories that she claims it does.

3.7.6 Quentin Smith's Degree presentism

Our final eternalist A-theory is Quentin Smith's degree presentism. Although degree presentism is sometimes described as an alternative version of the moving spotlight, I do not class it as such. This is because in some respects degree presentism is more like Williamsonian presentism, in that it holds that non-present entities are stripped of all their interesting intrinsic properties.[144] However, there is an important respect in which degree presentism differs from Williamsonian presentism; this is Smith's claim that there are 'degrees of existence'. On this view, all past, present, and future entities exist, but only present entities have what Smith calls 'maximal existence'. (For example, Smith says 'the present is existence itself'.[145]) In contrast, past and future entities exist by less than maximal degrees, which depend on their distance to the present. Hence degree presentism rejects the neo-Quinean idea that existence is a univocal notion.

---

[144] Like Williamsonian presentism, Smith's 'Degree Presentism' strips all non-present objects of their interesting intrinsic properties. See Zimmerman (2008), p. 125.

[145] Quentin Smith (2002), p.127.

Smith calls his theory 'presentism' because he distinguishes it from what he calls 'solipsistic presentism' (the view I call 'standard presentism'). Smith cannot accept so-called 'solipsistic presentism' because he finds it incoherent. For example, he says it is incoherent to claim that:

> Only the present exists in any meaningful sense of 'exists', and it is not the case that any past or future event or things exists in any sense whatsoever.[146]

Smith finds this view logically self-contradictory, as he claims it does not make sense for the present to exist in relation to anything unreal or non-existent; namely, the past or the future. Hence Smith claims that degree presentism is a logically unproblematic alternative to 'solipsistic presentism'.

Smith's theory is a *tensed* theory because he takes tensed truths and tensed states of affairs as basic. He also says that 'every fact involves a relationship to the present'.[147] However, Smith denies that there are monadic properties of pastness and futurity, which belong to existing events or non-present entities. Instead, he says that monadic predicates (of past or future events) are 'abbreviations of relational predicates'. Smith says this is because 'a nonmaximal degree of temporal existence requires every determination of a particular to be a relationship to the present, in relation to which the degree to which the past or future particular exists is determined.' [148]

To explain what he means, Smith considers how a non-present entity (Socrates), with a nonmaximal degree of existence, can stand in a relation to the present. He says:

> Socrates does not presently have the nonrelational [monadic] property of *being alive*. Nor does he presently have the relational property of *having been alive over 2,000 years earlier than the present time.* But this past Socrates can stand in relations to the present of being earlier than it.[149]

---

[146] Ibid., p 123.
[147] Ibid., p.129.
[148] Ibid., p.126.
[149] Ibid.

Smith explains that *having been alive* is 'analyzable into the property of aliveness and the state S of the thing tenselessly being alive earlier than the present time.' However, he says that it is not *Socrates'* tenseless exemplification of being alive that stands in relation to the present; rather 'it is the whole complex, the state S, that stands in this relation to the present.'[150] Smith says that since he does *not* identify exemplification with existence, he takes exemplification to have a primitive tenseless meaning. Thus Smith says the semantic content of a phrase, such as 'having been alive', is that 'Socrates exemplifies (tenselessly) the relational property *being alive over 2,000 years earlier than the present time*.'[151] Hence Smith says that every fact includes a relationship to the present, and this is why he holds that there are only tensed facts.[152]

The *ontological* picture Smith presents us with is one in which Socrates exists (to a nonmaximal degree) but is not alive. Smith says that as a past item, Socrates can have no non-relational (monadic) properties, such as being spatial or mental and so on. This means that Socrates is not a substance. Smith says that Socrates was a substance when he existed; but now Socrates is no longer an existent. However, he still exists 'to some degree'. Smith describes this 'degree' as partial being, which is neither total being nor non-being. I find this hard to make sense of.

Smith claims that degree presentism explains our phenomenological experience of time, because we do experience present things as more real than past things. Smith sees this as an advantage over (standard) presentism, which denies that there is anything earlier or later than the present that could stand in any relation to the present. He also sees degree presentism as having an advantage over the B-theory, because it allows that the present has more reality than the past and future. The B-theory, in contrast, treats all times equally. It is not clear that Smith is totally correct about our experience of time. For example, some of our memories can be very vivid and 'real' to us, even when they happened long ago, whereas things that happened yesterday can be forgotten. And we also attach greater emotional importance to some past events than we do to many present events. Moreover, the presentist has alternative ways of explaning how truths about the past are grounded in present truths.

---

[150] Ibid.
[151] Ibid., p.127
[152] Ibid., p.129.

Smith has more to say about the exemplification of the relational properties mentioned above. For example, he says they are tied to Socrates in an atemporal way, and yet in another sense they are temporal, as they belong to 'complex states', which involve being earlier than the present time. However, in his detailed critique of degree presentism, Oaklander criticizes Smith for being inconsistent here. For example, Oaklander claims that on Smith's view, the only thing that makes something present (or maximally existent) is that present entities have non-relational or monadic properties.[153] Oaklander then argues that if the complex state of *Socrates' (tenselessly) being alive is* earlier than the present, it *is* past. But since being alive is a monadic property of Socrates, and only present particulars have monadic properties, he says that it follows that Socrates' being alive is present. Moreover, he says that if Socrates is alive, Socrates must be maximally existent. But then if Socrates is also earlier than the past, Socrates is also less than maximally existent.

I take it that Oaklander is pointing out that Smith's degree presentism runs into the problem of temporary intrinsics, as Socrates cannot be both maximally existent and less than maximally existent. Oaklander considers whether Smith can avoid this contradiction. For example, Oaklander asks what the ontological status is of the fact (or complex state) that (e.g.) *Socrates (tenselessly) exemplifies by being x minutes earlier than the present time*. That is, is the fact timeless or temporal? If it is a timeless fact, Oaklander says that 'the present time' is neither a B-time nor A-time, which means it is repeatable. He says this leads to an absurd conclusion that *the same* 'present time' could denote different and incompatible times. (For example, *Socrates exemplifying being x minutes later than the present time*.) In which case degree presentism remains contradictory. However, if facts have *different* present times, Oaklander says that degree presentism avoids the contradiction but collapses into the B-theory.[154] This is because the present time would no longer be privileged. Oaklander concludes his critique by saying that degree presentism cannot be defended.

To sum up, I find degree presentism even less plausible than Williamsonian presentism. It seems to me that degree presentism creates more problems than the ones it is trying to solve, and I find it hard to understand what his notion of less-than-maximal-existence actually means. I also find Oaklander's criticism correct; the

[153] Oaklander (2009), p.158.
[154] Ibid., p.162.

notion of the privileged present, which Smith is trying to defend, either leads to a contradiction or collapses into the B-theory.

3.8 Semi-eternalism

In this section we briefly consider two theories, the growing block and the shrinking tree. We begin with the growing block, which is the most familiar version of semi-eternalism.[155] As we shall see, the main advantages of the growing block are held to be the following:

- It provides a 'genuine' tensed account of change.
- It provides a robust account of temporal passage.
- It straightforwardly provides truthmakers for statements about the past.
- It accounts for the direction and asymmetry of time.
- It accounts for the open future, as the future is not fixed.

3.8.1 The Growing Block

The growing blocker holds that reality consists of the past and the present, but the future is unreal. The present is the leading edge of the growing block; hence, the universe is seen as a continually expanding 4-dimensional spacetime manifold, whose expanding edge coincides with an objective present moment. So in the growing block, everything that is earlier than the present exists, but nothing exists that is later than the present. The growing blocker is thus committed to the view that objects exist temporarily. This is because they do not *always* exist. It is only once objects come into existence as they become present that they continue to exist permanently in the block.

Semi-eternalist theories are sometimes called 'hybrid A-B theories' because people claim that they incorporate aspects of B-eternalism with aspects of presentism.[156] This is not how I understand these theories. For example, in the case of the growing block, this would only be the case if the past section of the block were viewed like the static and unchanging block of the B-theorist; a '*grown* block' as

[155] Growing Blockers include, C. D. Broad, Peter Forrest, Robert M. Adams, Graeme A. Forbes, Fabrice Correia, and Sven Rosencrantz.
[156] For example, this is how Broad describes the growing block. Merricks and Braddon-Mitchell seem to think of it in this way too.

opposed to a '*growing* block'. However, most growing blockers do not think of the past section of the block in this 'B-theoretic' way. For although the past section of the block is permanent, they also consider it to be dynamic and changing in an A-theoretic way. This is because things in the past are continually receding further and further into the past, as new things come into existence in the present. So on this understanding, change not only involves new things coming into existence in the present; it also involves things ceasing to be present and receding further into the past.

As we saw in chapter 2, the growing blocker can also explain change in terms of previously open propositions becoming fixed. The idea here is that because reality is significantly tensed, the future isn't fixed. For example, we might think that although the past is all settled, there are multiple possibilities open to us in the future; and they will be settled by what happens today and tomorrow, and so on**.** So there is a multiple branching future (of possibilities), and the actual world selects one of these routes. So, looking backwards there is always one line, but looking forwards there are multiple branches, consisting of multiple possibilities. And it is because there are multiple branches that most propositions concerning the future do not have a determinate truth-value. This is typically described as the *infixity of the future,* but we might also call it the *unreality of the future*. On this view, reality consists of all there is now and has been; but because reality is forever growing, as reality gets bigger, it encompasses more and more facts.

There is disagreement between growing blockers about how to understand the nature of past inhabitants of the block. Some theorists, such as Broad, have claimed that other than ceasing to be on the present edge of the block, there is no difference between being in the past sections of the block and being present. To understand the growing block in this way is to think of the past inhabitants as concrete, alive and conscious. This leads to the problem that we cannot know when 'now' is now; that is, whether 'now' refers to the *objective* present. On this understanding, Caesar is alive and thinking that he is located in the present, in the same way that we are. *We* know that Caesar would be mistaken to think that he is located at the present; but we have no way of knowing whether we are in a similar position to Caesar. For example, we could be equally wrong in thinking that we are located at the objective present, and that *this moment* is now. For all we know, *this moment* could be located in the past, and the future could already be in existence in

later parts of the block. This is known as the 'when am I?' problem. Braddon-Mitchell and Merricks have also made this criticism against the growing block theory.

In response to this problem, many growing blockers deny that past inhabitants of the block are concrete or alive.[157] For example, Peter Forrest, blocks this sceptical worry with his 'dead past' hypothesis. On this view, it is only beings on the growing edge of the block that are alive and conscious, so it is never the case that past inhabitants are mistakenly thinking that now is now. So there are (there exist) past inhabitants, but they are not doing anything like thinking, because they are dead. And for those who are conscious and thinking, this is enough to guarantee that we are located at the objective and privileged present, which is the edge of the growing block. The only type of change these wholly past inhabitants of the block undergo is a mere Cambridge change. On this 'dead past' view, all 'genuine' change takes place in the present, which is where things come into being and are active.

The 'dead past' solution to the 'when am I' problem works by identifying this single present instant on the edge of the block, which is the only part of the block where things happen. However, this naturally raises questions about whether this single instant (the present) is too small for anything to happen in or for anything to move in.[158] If this is correct, it seems that we either have too much happening, as things happen at past times, in which case we still have the 'when am I' problem.[159] Or we have the situation where nothing happens, as the present is too short for anything to happen at it.

Correia and Rosenkrantz offer the following response to this question (in support of the 'dead past' hypothesis). They claim that the growing blocker can give an adequate description of how things change, such that the issue about how things 'happen' in the present is covered. Correia and Rosenkrantz state that they take the debate between the growing block theory and its rivals to be a debate about what 'there is' 'where this is understood in terms of the most fundamental notion of quantification.'[160] (By 'fundamental' they mean that they are excluding any abstract objects.) They take 'there is' to be a tensed notion of present existence (or being

[157] For example, G. A. Forbes, Correia and Rosenkrantz, and Forrest.
[158] Le Poidevin (2002, p.68) raises this as an objection to presentism, but it seems that it equally applies to this understanding of the growing block. We consider this as an objection to presentism in the next chapter.
[159] The 'when am I' problem also applies to the moving spotlight.
[160] Correia & Rosenkrantz (2014).

present), and they claim that the present is rigidly designated by 'NOW'. They also introduce the idea of 'alwaysations' in order to say how things always are (or what is always true) in their growing block theory (so they treat always as a tense operator), and they define two notions; *being later-than*, and *being on the edge*. Then they claim:

- Always, an object *x* is later than an object *y* provided that sometimes *y* is present while *x* will be present.
- Always, object *x* is on the edge of reality, provided that *x* is such that nothing is later than *x*.

They also make the assumption that: *always, everything is instantaneous*.[161]

They then argue that many things are true according to their version of the growing block. For example:

1. Always, everything is present or was present.
2. Always, something is present and something was present.
3. Always, everything that is present will always be something.
4. Always, nothing will be present.
5. Always, everything that is present always in the past was nothing.[162]

Claims 1-3 are sufficient for the growing block theory, but 4 and 5 make it clear that the future things are non-existent and hence cannot be quantified over.

They then claim that it is always the case that:

6. Always, EVERYTHING that is present is on the edge.

They take this to show that for anything that is present or NOW, it must be on the edge. They then address the worry about the present being too small for anything to happen at it. Their response is that since their argument concerns a fundamental

[161] They do not claim that the growing block theory rests on the truth of this assumption; they make it to simplify their response to the 'when am I' problem.
[162] In their paper they use metric operators (it always that case that *n* days earlier-than 0, where 0 is the present). However, in their discussion of the paper, they put these less technical terms of the Priorian operators EVERYTHING and SOMETHING. (*PERSP Workshop on the As and Bs in the Philosophy of Time.* Barcelona 19-20 September 2013.)

ontology of instantaneous entities, this does not have to include events or happenings or processes. So they can just avoid the charge that the present is too small for anything to happen. They claim that they can describe how things change in a Russellian *at-at* idea, so they can always explain how things are at different times.

Correia and Rosenkrantz provide a metaphysical account of how entities change, even though they are only alive in the present. But it is not clear whether they have really explained how a physical entity can change if that entity exists only at an instant. (We return to this worry in the next chapter.) However, by restricting their most unrestricted quantifier to what *there is*, as many presentists do, they are (at least) able to say how reality is NOW, and how past things *were*. So they do not have to say how past things are. And like the presentist, they hold that what *there is* changes over time.

It also seems that the growing blockers like Correia and Rosenkrantz can use the primitive tense operator 'there is' to give as complete a description of how reality *is* and *was*, without running into McTaggart's paradox. For example, consider the two Queens, Elizabeth I and Elizabeth II. The growing blocker can say 'there is' (or 'there are') two things; one is presently the Queen called Elizabeth, the other one used to be a Queen called Elizabeth. For the growing blocker, the fact that we cannot describe how some aspects of how reality *will be* is not due to any psychological limitation on our part; rather, it is because reality is such that the future is not yet fixed. That truths about the future are not fixed is seen as an advantage of the theory. This is because it provides a straightforward way to explain the direction of time, and it also explains the symmetry of time (why we remember the past and not the future). The growing blocker claims that her view has an advantage over presentism. This is because she can account for past truths and cross-temporal relations in a straightforward way. We now turn to a different version of semi-eternalism; the shrinking tree.

3.8.2 Storrs McCall's 'Shrinking Tree'

Storrs McCall's 'shrinking tree' is a semi-eternalist theory which tries to incorporate aspects of quantum physics. I shall not attempt to explain the physics elements of the view, but shall instead describe the metaphysical picture it gives us. The shrinking tree is sometimes called 'the branching universe'. The shrinking tree

theory can also be interpreted as an eternalist A-theory. Whether or not one chooses to interpret it in this way depends on whether or not one reifies the branching structure of the universe it describes. My reason for classifying it as a semi-eternalist theory is due to the fact that the branches need not be reified. (This is explained below.)

As we have seen, according to the growing block theory, reality consists of the past and the present. On the growing block view, the future is not real; there are just many possible ways that how things are now *could* go. Thus, reality grows as the block grows; and as it grows it encompasses more and more facts. The shrinking tree views this process differently. For example, we can think of the shrinking tree as starting off as a shrub (i.e. a tree with no trunk). Here, reality begins by consisting of all possible physical futures (or branches), and no fixed past (or trunk). McCall says that the present is the 'first branch-point', and as it moves up the tree, the tree undergoes the process of branch-attrition, as various branches or possible states of affairs are eliminated from the way physical reality actually is. Throughout this process of branch-attrition, the present remains the point where the single fixed past (the trunk) meets the open future (the various branches).

In many ways, this might sound quite similar to the growing block theory. However, there is an important difference; namely, that McCall holds that all possible states of affairs are just as real as any actual states of affairs. So on his view, the branches are just as real as the trunk. This means that where reality progressively increases for the growing blocker, for McCall reality shrinks in the sense that various physical possibilities no longer have the option of becoming actual. In this sense, McCall's theory resembles Lewis's modal realism, as all the possible futures are just as real as the actual past and present; just as for Lewis, possible worlds are on an ontological par with the actual world. So for McCall, it never is the case that new possibilities are created as the past becomes settled, as all possibilities are real from the outset.

In this way the shrinking tree provides a dynamic account of temporal passage in terms of settling of previously unsettled irreducibly tensed facts. The present is seen as an objective moment within the four-dimensional spacetime manifold, at which various possible future branches are eliminated. Oliver Pooley suggests that

we should understand this as a 'non-standard open-future model'.[163] By this he means that we should view the 'shrub' (the primary structure prior to branch attrition) as capturing how things might turn out, but not how they will turn out. Pooley says that here it is important to note that the 'sequence of trees [the various stages within the process of branch-attrition] does not represent how reality is absolutely, as conceived from no particular point of view.'[164] What he means is that at any point in the sequence, it should *not* be that 'the tensed facts as of one time can be read off from those that hold at another.'[165] If the tensed facts could be read-off other tensed facts in this way, he says that it would be unclear what being irreducibly tensed would mean. This is because the B-theorist's block universe does give us a unique representation of reality, from which perspectival facts can be derived. Hence, Pooley concludes that the branches in the shrinking tree model should be understood as corresponding to facts that are genuinely unsettled. This is what it means to not reify the branches, in the way the B-theory would.

I lack the expertise to comment on the physics, which McCall claims underpins his theory. However, I note that if his theory is taken as understanding the branches as deterministic (as opposed to open possibilities), it suggests a branching multiverse. In which case, there is the question of whether his theory requires an absolute present (understood as involving a relation of absolute simultaneity), understood as the collapse of the wavefunction. If it does, his theory would not sit easily with standard interpretations of the special theory of relativity.

3.9 Kit Fine's Non-standard A-theory

In *Modality and Tense*, Fine argues that standard realists about tense cannot adequately account for change and temporal passage.[166] He claims that this is because the picture of reality which they provide is just as static as the B-theorist's block picture. He therefore says that if one wants to be a realist about tense, one should become a non-standard realist about tense. Fine presents two versions of a non-standard A-theory (external relativism and fragmentalism), which he claims avoid the problems that standard A-theories face when they try to account for passage and change. He therefore recommends adopting one of these non-

[163] Pooley (Op. Cit.)
[164] Pooley, Ibid., p. 26.
[165] Ibid.
[166] Standard realists include A-theoretic eternalists, semi-eternalists, and presentists.

standard positions, if we want to hold on to the idea that tense is real and reality is dynamic.

Fine describes realism about tense as typically involving a combination of two views; the view that reality is tensed, first-personal, and 'aspectual', and the view that there is a privileged viewpoint (the present) from which this aspectual character is discerned.[167] The central claim of Fine's view is this; that while these two views naturally go together, one can hold on to the first without accepting the second. So Fine thinks there can be *tensed* facts, *without* there being a privileged viewpoint. Hence, between anti-realism about tense (the B-theory), and standard realism about tense (the A-theory), Fine thinks there is room for this third position. We can already see that this sets him apart from standard A-theorists, as one of the key claims of standard A-theories is that the present *is* objectively privileged in some important way.

Fine spends some time introducing his 'reality operator', which can be read as 'it is constitutive of reality that…'. Fine wants to put this operator to work in order to distinguish between 'mere reality' and 'metaphysical reality'. The idea here is that he is trying to set up a way to distinguish between how things *merely* are, and how they *really* are. His particular interest is in whether the tensed aspect of a statement 'may be an impediment to its faithfully representing that fact.'[168] For example, suppose I utter the tensed statement 'Elizabeth is Queen'. What Fine wants to know is whether reality is constituted by tensed facts like Elizabeth is Queen, such that reality itself is intrinsically tensed; or whether it is *merely* the case from my tensed and aspectual perspective that Elizabeth is Queen. However, Fine is *not* taking that idea of a 'merely' tensed perspective to involve anything like a reduction of the reality of this *tensed* fact to the *tenseless* B-fact that Elizabeth is Queen at *t*. He says that this would be to misunderstand the issue in question. So Fine wants to use the reality operator to argue for an alternative to both the B-theorist's 'view from nowhere' (which takes the tenseless description to be the absolute truths) and the standard A-theorist's 'view from within time' (which takes the absolute truths to be tensed).[169]

---

[167] Fine (2005), p. 262.
[168] Ibid., p.268.
[169] The B-theorist claims that we can derive the tensed facts for all times from the tenseless description; whereas the A-theorist claims that we can derive a tenseless description of reality from the tensed truths.

As we saw in chapter 2, Fine reconstructs McTaggart's argument in terms of the following four commitments, which he claims are inconsistent:

- *Realism:* Reality is constituted (at least in part) by tensed facts.
- *Neutrality:* No time is privileged; the tensed facts that constitute reality are not orientated towards one time as opposed to another.
- *Absolutism:* The constitution of reality is an absolute matter, i.e. not relative to a time or other form of temporal standpoint.
- *Coherence:* Reality is not contradictory; it is not constituted by facts with incompatible content.[170]

As we also saw, Fine then characterises the standard positions in the metaphysics of time, in terms of which of one these four commitments is rejected. For example:

- B-theorists reject *realism* (but accept *neutrality*, *absolutism* and *coherence*). For the B-theorist, the fundamental facts that constitute really are *tenseless*. So it is not constitutive of reality that Elizabeth *is* Queen or that Elizabeth *was* Queen. Rather, it is constitutive of reality that Elizabeth is Queen at *t* and that Elizabeth is not Queen at *t'*.

- Standard A-theorists accept *realism, absolutism* and *coherence*, but they reject *neutrality* because they privilege the present. The presentist claims that the present is *ontologically* privileged, whereas other A-theorists claim that the present is *metaphysically* privileged in some other way. A-theorists then use the notion of the privileged present in various ways to account for change and to avoid McTaggart's paradox.

Although these two approaches are the standard ways to account for change, and to respond to McTaggart's paradox, Fine is not satisfied with either.[171] Fine says that in rejecting *realism*, the B-theory trivializes temporal passage. The idea here seems to be that in denying that the present is special in any objective sense at all, the B-theorist denies our intuitive sense that time passes. Thus Fine does not consider that mere variation is sufficient for change. However, in rejecting *neutrality*,

[170] Ibid., p. 271.
[171] The B-theorist's response to McTaggart is to deny that we need A-characteristics in order to account for change.

Fine says that the standard A-theory fails to account for passage at all. He explains this objection as follows:

> The standard realist faces a greater difficulty. For suppose we ask: given a complete tenseless description of reality, then what does he need to add to the description to render it complete by his own lights? The answer is that he need add nothing beyond the fact that a given time *t* is present, since everything else of tense-theoretic interest will follow this fact and the tenseless facts. But how could this solitary "dynamic" fact, in addition to the static facts that the anti-realist is willing to accept, be sufficient for the passage of time? We naturally read more into the realist's tense-logical pronouncements than they actually convey. But his conception of temporal reality, once it is seen for what it is, is as static or block-like as the anti-realist's, the only difference lying in the fact that his block has a privileged centre.[172]

Hence Fine's claim is that the realist's notion of a privileged present is too static or 'frozen' to account for passage. The objection seems to be that by objectively privileging a single present moment in their descriptions of reality, the A-theorist describes a succession of *distinct* realties, each privileging a different time. Whereas what is wanted is not a change *between* the descriptions of reality, but rather something that explains how there is a change *in the content of reality*. Hence Fine seems to think that dynamism requires *neutrality* in order to capture the relation between one time being privileged (in some non-standard way) and another time being privileged (in some non-standard way), such that the privileging of both these times is constitutive of reality.

Naturally the standard A-theorist will disagree with Fine here. For example, some A-theorists might claim that the whole point of their dynamic theory of time is that because the complete description of reality changes over time, you cannot describe that change from *within* any single time at which you are present. Others might claim that the change *is* to be located in the single description, because contained in any one time, is not just how things are, but also how they were and will be.

---

[172] Ibid. p. 287.

However, given his rejection of standard realism, Fine says that if we want to be *realists about tense* we should be non-standard realists about tense. His two versions of this non-standard A-theory, which both combine *realism* with *neutrality*, are:

- External Relativism. This is the claim that what is constitutive of reality itself varies with time. This is because reality obtains relative to perspectives, but none of them is privileged over any other. This involves upholding *coherence* by rejecting *absolutism*.

- Fragmentalism. This is the claim that there are true claims such that 'it is constitutive of reality that *p*', and 'it is constitutive of reality that *q*', where somehow *p* and *q* do not cohere together. This involves rejecting *coherence*.

According to external relativism, all the tensed facts that obtain at various times are objectively present, but *only relative to particular times at which they are present*. Here Fine considers whether a tensed time 'the present' can be a constituent of a tensed fact such that, for example, it is constitutive of reality that at t_1 'Elizabeth is Queen' is objectively present, but only relative to t_1. And it is also constitutive of reality that at t_0 'Victoria is Queen' is objectively present, but only relative to t_0. Fine calls these 'alternate realities'. The idea here is that reality is coherent, because these views are not incompatible with each other (and hence external relativism avoids McTaggart's paradox); but this is only because there is *no* absolute or more fundamental reality of which these viewpoints are parts. So there is no complete description of reality. This is why Fine suggests that Dummett might be an external relativist.[173]

However, it is not clear what it means to say that it is constitutive of reality that at t_1, *p* is present at t_1 (or alternatively, that it is a fact at t_1 that t_1 is present). Fine seems to share this worry, and accepts that we cannot give sensible content to claims that allow times to be among the fundamental constituents of reality. So he tries to analyse this in terms of *a* is F at *t*. But that then becomes a tenseless claim, which is acceptable to the B-theorist. Fine admits that he is not sure if external relativism

[173] Ibid. p 279n.

can be sensibly expressed without some reference to times. Hence he concludes that we seem to be 'forced into favouring fragmentalism.'[174]

According to fragmentalism, all the tensed facts from all times constitute reality absolutely, but since they are not all compatible, reality itself must be irreducibly contradictory.[175] So it is constitutive of reality that *p* is present and it is constitutive of reality that not-*p* is present. On this view, reality is constituted by the tensed fact 'Elizabeth is (now) Queen' and by the tensed fact 'Victoria is (now) Queen'. So why is fragmentalism not simply the view that there can be true contradictions? Fine's answer is this. Reality is fragmentary such that one fragment contains the representation of the tensed fact that Elizabeth is Queen, and another fragment contains the representation of the fact that Victoria is Queen. But no fragment contains both of these representations. So the idea seems to be that there is not an *explicit* contradiction; there is only a contradiction under the scope of an operator (the reality operator). Hence the truth conditions of each of these propositions relate to different fragments of reality. To put this another way, we could say that *within* the scope of the reality operator, both these tensed facts obtain, and hence constitute reality in an absolute way. However, they do not cohere, because they belong to different fragments (or subsets) of reality; thus although these fragments are coherent *in themselves*, they are parts of a larger and incoherent reality.

Fine's idea seems to be this. The external relativist avoids incoherence by using the notion of relative times as fundamental, and uses this to reject *absolutism*. Hence, times are used to explain the basic facts. (Thus, Fine's worry is that this reduces to a tenseless account.) In contrast, the fragmentalist is not using times as fundamental. Instead, it seems that one's attitude towards *coherence* is the more basic thing, and this is then used to identify times. For example, the fragmentalist does not worry that reality *as a totality* is incoherent, because there are sub-portions of reality that are coherent. So, within these sub-portions, times are defined as maximal fusions of facts (i.e. coherent facts). Hence times are understood as the limits of coherence; and where we get incoherence, we get the incompatibility that arises from changes over time. So the fragmentalist accepts incoherence, but claims to limit its effect.

---

[174] Ibid., p. 310.
[175] See Deng (2012), p.9.

Let us contrast this view with the standard A-theory. When the standard A-theorist holds that the tensed fact *p* obtains *and* that the tensed fact not-*p* obtains, we have two incompatible tensed facts. The standard A-theorist typically claims that they avoid this contradiction by placing either *p* or not-*p* within the scope of a primitive past- or future-tense operator. As we saw above, Fine's objection to this is that he claims this just describes two *distinct* realities, each of which has a single and static present. And Fine claims that this is not sufficient for change. With fragmentalism, both facts (*p* and not-*p*) are part of *the same reality* – and hence we can describe a change *in* reality, by recognizing where distinct fragments do not cohere. The idea here is that taking change seriously involves taking seriously the multiple realities that constitute reality; so the fragmentalist acknowledges these multiple realities (or distinct fragments), even though these do not cohere. Hence, it seems that accepting that *reality is incoherent* somehow makes such incompatible facts non-contradictory. According to Fine, this allows the fragmentalist both to describe change and avoid McTaggart's paradox, because the incompatible facts belong to distinct fragments of reality.

Hence, Fine claims that unlike standard A-theories, fragmentalism enables the non-standard realist to avoid McTaggart's paradox *and* account for passage. As we have seen, standard A-theorists disagree since they claim that they can account for change and avoid McTaggart's paradox. Fine also has another reason for rejecting the standard realism, which is his claim that tensed propositions cannot change truth-value; and hence, that different utterances of the same tensed proposition can be contradictory. However, since Fine does not give good reasons for denying that tensed propositions can change their truth-value in the first place, the standard A-theorist can just disagree with Fine here.[176] Standard A-theorists endorse propositional temporalism as part of their account of how tensed facts change over time. Hence they use primitive tense operators to explain how the *same tensed fact* can be true and not true at different times, without making contradictory claims. For example, within the scope of a tensed operator, the tensed fact expressed by the sentence 'it is raining' can have different truth-conditions at different times (e.g. true on Monday and false on Tuesday). Hence, because standard A-theorists do not accept Fine's claim that it is a *distinct* tensed fact that is expressed at different times,

[176] For a discussion of this issue, see Cameron (*Op. Cit.),* pp. 95-102.

they can use tense operators to describe how reality changes, without making contradictory claims.[177]

In the case of fragmentalism, the standard realist might also question whether it really makes sense to claim that we avoid contradictions because reality itself is contradictory in some way. Moreover, it is not even clear that fragmentalism itself is sufficient for change. For example, Fine says:

> For the fragmentalist, each time *t* is objectively present simpliciter – i.e. reality is constituted by the absolute fact that t is present. … Presentness, in so far as it is a genuine feature of reality, applies equally to all times. Presentness is not frozen on a particular moment of time and the light it sheds is spread equitably throughout all time. Of course, this feature, by itself, does not account for the passage of time. … So clearly, something more than the equitable distribution of presentness is required for the passage of time. But at least, on the current view, there is no obvious impediment to accounting for the passage of time in terms of successive nows. [178]

So it seems to me that Fine's objection to the standard A-theorist's way of accounting for passage is unwarranted. This is not only because he does not give good reasons for rejecting propositional temporalism, or because the standard A-theorist can claim that she can explain dynamism, even from the perspective of a single moment. It is also because Fine fails to give an *alternative* account of passage with his non-standard view. Fragmentalism is a radical option, because even it *were* intelligible, it comes with the cost of giving up the idea that reality forms a coherent whole. Moreover, both versions of non-standard realism ultimately seem unintelligible on their own terms. So I conclude that Fine's non-standard realism does not succeed in showing that standard versions of the A-theory fail to provide dynamic accounts of time.

---

[177] Fine has a third argument against standard A-theories. Fine claims that standard realism is hard to square with the Special Theory of Relativity (SR). Fine says that if we accept SR, the standpoint from which tensed facts are said to obtain becomes merely frame-dependent. So if we are taking tensed facts to be constitutive of reality, SR implies that there is no reason for preferring one person's reasons for privileging their tensed standpoint to another's. I do not discuss this argument.

[178] Ibid., p 228.

An interesting point, which Fine makes in his rejection of standard realism, is the claim that all standard A-theories are too static for dynamism. This objection is typically made as an objection to presentism, as opposed to other A-theories. In this chapter, we have aleady seen how non-presentist A-theories claim to account for change. In the next chapter, we consider how the presentist deals with Fine's claim that a single present is too static to account for passage and change. As we shall see, the presentist claims that they can account for change because reality as a whole changes as time passes. Moreover, the presentist claims that she has the resources to adequately describe how things were or will be, without having to accept the existence of other times. Nevertheless, Fine's argument touches on many of the issues we have considered in this chapter; namely, whether the different versions of the B-theory and A-theory can account for change – and in the case of the A-theorist, how they can avoid McTaggart's paradox.

3.10 Conclusion

As we have seen, the various metaphysical theories in the philosophy of time do not fall easily into neat categories. However, we have identified some important ways of characterizing the various debates between these theories. A-theorists are motivated by the idea that reality is more dynamic than the reality described by B-theorists in their tenseless block universe. This is because A-theorists do not think that the B-theorist provides adequate account of change or the passage of time, or of our intuition that the present is special in more than a merely perspectival way. Among the A-theoretic accounts, presentism seems to be at the other end of the spectrum from the B-theory. The permanent four-dimensional manifold or block universe is very different from the temporally 'thin' and transient three-dimensional manifold of the presentist. As we shall see in the next chapter, much of the criticism of presentism stems from the view that standard presentism is just too 'thin' as an account of reality, and therefore it fails to provide an adequate account of change, passage, and temporal succession, as well as failing to provide truthmakers for non-present things and other grounds for cross-temporal relations.

B-theorists, on the other hand, accuse the A-theory of falling prey to McTaggart's paradox in various ways, or of being unable to account for dynamism for reasons similar to those given by Fine. They also have the additional complaint that SR implies that there is no uniquely privileged present. So the B-theorist claims that change is variation, and that the A-theorist is looking for something 'more' which is

not there in reality. However, we have seen that B-theorists are not a united group. For example, they disagree about how to account for change, and in particular, about how to explain persistence. Although I do not think that Mellor's B-theory of change is successful in providing a B-theoretic account of endurantism, as an A-theorist, I find his rejection of the temporal parts account of change encouraging.

So what this chapter has shown us is that, thus far, there is no clear 'winner' emerging from among the various attempts to provide a more accurate account of the nature of temporal reality, and what it is to exist at a time. In the next chapter, we consider how the presentist claims to give a better account than its non-presentist rivals in these respects.

Chapter 4. Varieties of Presentism

4.1 Introduction

In this chapter, we explain what the various versions of presentism are, and how they respond to the objections raised against presentism. We mentioned in chapter one that the label 'presentism' does not describe a single theory of time; rather it describes a variety of subtly different theories, all of which hold that the present is ontologically privileged. (To say that the present is *ontologically* privileged means that only the present time and its contents exist.) As presentists all agree that *only present objects exist*, we might wonder why there are so many different versions of presentism (or what there is for presentists to disagree about). The reason for this is that because presentists confine reality to the existence of a single present moment, they come under pressure to admit past and future things into their ontology. This is in order to explain what makes claims about past and future entities true, or to explain various cross-temporal relations, which seem to require the existence of non-present things. So each of the different versions of presentism develops different ways of accounting for the truth of statements about (or involving) non-present things. For example, the Priorian presentist claims that using primitive tense operators provides us with all we need to explain what makes statements about non-present things true or false. Lucretian presentism (or property presentism) allows that there presently exist properties about how the world was in the past. Ersatzer presentists allow that there presently exist such things as abstract non-present times, or an ersatz B-series. And a different type of presentism, neo-Meinongian presentism, accepts that *there are* non-existent past and future things, even though they do not presently exist. So these are the issues that the different versions of presentism disagree about.

4.2 Chapter plan

I said earlier that presentism is best understood in terms of what it *rejects*, in contrast to what other metaphysical theories of time *accept*. For example, unlike her non-presentist rivals, the presentist does not think that past things such as dinosaurs and Queen Victoria exist, or that future things like Martian outposts exist.[1]

[1] The growing blocker agrees with the presentist about the non-existence of wholly future things.

So presentism can be understood in terms of what it rejects, and the objections to presentism all relate to the issues about the things that it rejects. Hence in this chapter, I explain what the various versions of presentism are (and the issues they disagree about), in terms of how these different versions of presentism respond to the objections presentism faces. The plan of the chapter is as follows. After introducing the various objections to presentism, we discuss how presentists respond to these objections in two main groups. The first group consists of versions of presentism, which I loosely call 'standard presentists'. These are presentists who accept the Quinean idea that what exists equals what there is. The second type of presentist, which I call the neo-Meinongian presentist, rejects the Quinean idea that the only things there are are things that exist. These presentists allow that there are things that do not presently exist. As will be explained, the different versions of presentism have very different ways of meeting the various objections presentism faces. However, before we turn to these objections, I shall briefly consider the reasons in favour of presentism.

In the final section of Chapter 1, I argued that presentism is the common-sense view of time. This is because presentism is implied by many of our ordinary intuitions about the nature of time, and what it is to exist at a time. For example, these include the immediacy of our experience of being located in the present and nowhen else, which makes it natural to believe that the present is the unique place where things exist and happen. The second key claim of presentism, that time passes, also fits with our experience of being located at a transient present moment. This is because the transient present appears to be the thin slice of reality, which separates the no-longer-real past, from the yet-to-be-real future. Or for those who think that the past is real *in the sense that* it is fixed, the present is what separates the fixed past from the yet-to-be fixed future. That presentism appears to be the common-sense view of time is held to be the most compelling reason for adopting presentism.

I agree that appearing to cohere with our intuitive or common-sense ideas about time is the most compelling reason for being a presentist. And this is how most people understand the view. But if presentism is to be a credible theory, it needs to do more than cohere with common sense. It also needs to explain how it accounts for things like change, persistence, causation, and our relations to non-present entities and truths involving such entities. For example, the presentist does not think it is part of commonsense to say that it is true that Socrates exists; but she still needs to explain what makes statements, such as 'Socrates taught Plato,' true, or

what makes claims such as 'I admire Socrates true'. As presentists reject the existence of such wholly past entities, critics of presentism either claim that presentism cannot account for the truths of such statements, or that presentism involves such complicated 'metaphysical gymnastics' that it becomes far removed from common sense. As we have seen in chapters two and three, non-presentist theories also involve some 'metaphysical gymnastics' when it comes to explaining how existing things change, or how time passes, or explaining how tensed statements are reduced to tenseless ones. However, the additional challenge facing presentism is that it appears to have limited resources available to account for such things, as they involve things which presentists deny the existence of. Nevertheless, if presentism is to be a credible theory, it must give us a credible account of such things.

To be credible, presentists need to show that presentism is not incompatible with our best current physics. Even though the average person is unlikely to understand what the special theory of relativity or quantum mechanics tells us about time, it is still part of our common-sense ideas that a metaphysical theory of time *should* not be incompatible with our best current physics. So while I am not competent to discuss the details of these theories, let me repeat what was said in Chapter 1. If physics had unanimously shown us that there could not be such a thing as absolute simultaneity, then presentism would be very difficult to defend.[2] This is because SR tells us that simultaneity is just a frame-relative relation, which implies that times other than the one we consider to be present are equally real. But physics has not unanimously shown us that there is not, or could not be, such a thing as absolute simultaneity. And this is all the presentist needs to be able to show that her theory is not ruled out by physics.[3] So the objections to presentism that we consider here are the metaphysical objections. Let us now turn to those objections.

4.3 Objections to presentism

Truth and Reference: As already mentioned, the objections to presentism all relate to issues about the things that it rejects. The first objection we consider concerns truths about non-present things. As the presentist holds that only present objects

[2] Some presentists (e.g. Hinchcliff) have tried to make presentism compatible with SR. As mentioned in Chapter One, this makes being present a relative matter, as opposed to an absolute one; hence this is not an attractive option for traditional presentist.

[3] Presentists who hold this view include Prior (1969, p.50.), Markosian (2004, p.75), & Zimmerman (2011, pp.163-245). Zimmerman has a detailed discussion of these issues.

exist, she denies that Socrates exists. But if Socrates does not exist, how does the presentist explain what makes the statement 'Socrates taught Plato' true? As the presentist takes tense seriously, she takes the fact expressed by this sentence to be irreducibly tensed.[4] To put the problem in more general terms; in virtue of what are propositions about the past and future true? As Sider explains, in our ordinary talk and thoughts, we appear to quantify over lots of non-present objects, but in doing so presentists appear to 'commit themselves to more than their ontological scruples allow'.[5] (The eternalist has no problem quantifying over non-present objects, because eternalists accept that merely past and merely future entities exist.) The idea here is that every true proposition must have a truthmaker; which is something in the world that makes that proposition true. As the presentist denies that Socrates exists, there is nothing to ground the truth that Socrates taught Plato. So it seems that to be consistent with her ontological scruples, the presentist must deny that the statement 'Socrates taught Plato' is true.

There is also a distinct (but closely related) problem with how we refer to non-existent objects. This concerns singular propositions about concrete objects. A singular proposition is a proposition that is not a disguised general proposition. According to presentists like Prior, singular propositions depend for their existence upon their subjects. So if Socrates does not exist, then according to presentism there can be no singular propositions about Socrates. This means we cannot quantify into the position of that name (Socrates). According to Prior, if an individual does not exist, there are no singular propositions about it available to be true or false. So it seems that there is nothing that 'Socrates' refers to, and again, that a sentence expressing a proposition about Socrates is neither true nor false.

As we shall see, when we look at the various versions of presentism, standard presentists typically go one of two ways here. They can either deny that past and future truths need truthmakers and offer certain paraphrasing strategies. Or they can claim that there exist, in the present, truthmakers that make such claims true. In contrast, the neo-Meinongian presentist can appeal to truthmakers that are in the past or future. This is because she holds that reality extends beyond the domain of presently existing things. Thus the domain of presently existing things is just a sub-domain of the things that there are.

---

[4] Hence it cannot be reduced to a tenseless truth, such as the truth expressed by the sentence 'Socrates taught Plato at time *t*', or analysed in terms of B-relations.
[5] Sider (2001), p.325.

Cross-temporal relations: There is also the objection that the presentist cannot account for cross-temporal relations. Cross-temporal relations are relations that hold across times (i.e. between two different times). The idea here is that temporal relations, just like any other relations, can only hold between relata that exist. This immediately raises a problem for the presentist, as they deny the existence of any times except the present and any objects except presently existing objects. Cross-temporal relations include things like causation, where a cause always *precedes* its effect. Cross-temporal relations include other relations, such as admiring Socrates, or being the descendent of my great-great grandmother. However, according to presentism, wholly past people do not exist. Hence it seems that I cannot admire Socrates, as there isn't anything that I can stand in the admiring relation to. (And similarly for being the descendant of my great-great grandmother.) Nor does it seem that causes can be related to their effects.

Change: We have already mentioned Fine's objection that the A-theory cannot account for change. We consider it here as an objection to presentism. The presentist claims that change involves the coming into existence and going out of existence of a succession of single (present) moments, as time passes. However, Fine claims that a series of single unique present moments is too static to account for change. According to Fine, what we need for there to be a change is a change *in* reality. However, a series of static moments does not give us that, as it involves a succession of distinct realties. Rather, it gives us a change of reality.

4.4 Presentism

As mentioned above, in order to see how the various versions of presentism respond to these objections, we discuss these by separating them into two distinct categories. I call these 'standard presentism' and 'neo-Meinongian presentism'. Standard presentism consists of the versions of presentism that accept the neo-Quinean idea that there is only one type of existence; the type captured by the existential quantifier. So while there are many different versions of what I am calling 'standard presentism', they all accept that what exists is what presently exists, and 'what there is' is what there presently is. Neo-Meinongian presentism consists of versions of presentism, which do not accept the neo-Quinean idea that what there is equals what exists. For these presentists, what exists is what presently exists, but 'what there is' does not equal what there presently exists. For these presentists, the

domain of *what there is* is fixed and permanent, and it is only the sub-domain of what exists which varies over time. As we shall see, because neo-Meinongian presentists accept that there are non-existent things, they have the resources to respond to many of the objections to standard presentism; namely, how things can be true about various objects which do not exist, and how we can stand in relations to objects that do not exist.

While these two groups of presentists have quite different ideas about 'what there is', they all have they following commitments in common. For example, all presentists:

- Take tense seriously. (Hence they are realists about tense.) They also claim that:
- Only the present time and its contents exist. Hence they are realists about the present, but antirealists about other times.
- Tensed or A-properties, such as being past, present, or future, are irreducible and cannot be analysed in terms of tenseless B-relations.
- Some of the fundamental temporal facts are tensed facts; that is to say, facts involving A-properties (including facts about which times are past, present, and future).
- There are tensed propositions, which are capable of being true and false at different times.
- Time passes.

We now turn to standard versions of presentism.

4.5 Standard versions of Presentism

Standard versions of presentism accept that there is only one type of existence. This is the type of existence which is captured by the existential quantifier. Hence, if there *is* some *x*, then that *x* exists. In this respect, these presentists agree with their eternalist rivals, who also accept that to be or to exist is to be in the domain of our most unrestricted quantifiers. The disagreement between them concerns what is included in our most unrestricted domain. Let us remind ourselves of Markosian's list. When Markosian introduces presentism, he writes:

> Presentism is the view that only present objects exist. According to Presentism, if we were to make an accurate list of all the things that exist –

> i.e. a list of all the things that our most unrestricted quantifiers range over – there would not be a single non-present object on the list. Thus, you and I and the Taj Mahal would be on the list, but neither Socrates nor any future grandchildren of mine would be included.[6]

For the presentist, not a single non-present object is on the list. For the eternalist, all past, present, and future objects are on the list. (We can think of Quine's catalogue here.) In this way, because standard presentists (hereafter presentists) agree with eternalists on the language of quantification, it is very clear what the dispute between them is about. For the presentist, claims like 'there are dinosaurs', 'Socrates exists', and 'there are temporal parts' are false. In contrast, for the eternalist, the list of all the things that our most unrestricted quantifiers range over includes past, present, and future objects. Hence, the eternalist has a very inclusive ontology when it comes to temporally located objects, because being non-present does not mean being non-existent. The eternalist thus has all the temporal objects he needs, when it comes to explaining what makes statements about merely past and merely future objects true, or finding relata for relations in which at least one of the relata is a non-present object.[7] For example, the eternalist holds that it is because dinosaurs exist, albeit in an earlier part of the manifold, that dinosaurs can be the truthmakers for statements about dinosaurs. And it is because Socrates exists, albeit in the fifth century BC part of the manifold, that I can stand in the admiring-relation to Socrates.

We shall now look in some more detail at standard versions of presentism (versions that hold that our most unrestricted quantifiers range solely over presently existing entities). Within this group there are Priorian presentists, Lucretian presentists, and ersatzer presentists; that is, presentists who accept the existence of ersatz times. As these presentists restrict reality to the present, and deny the existence of past and future things, this view is sometimes called 'temporal solipsism'. So let us examine whether presentism deserves this title.

Robin LePoidevin calls presentism 'temporal solipsism' to distinguish it from Quentin Smith's degree presentism (which I categorize as a version of eternalism). However,

---

[6] Markosian (2004), p.47. Markosian adds the following footnote to this definition: 'more precisely, it is the view that, necessarily, it is always true that only present objects exist.'

[7] For the A-eternalist this is very straightforward. The B-eternalist has to claim that all tensed statements are made true by B-facts; but once they have done this, they have no difficulty in explaining what grounds those facts.

the term 'temporal solipsism' is *not* meant to describe the extreme view that past times never existed or that future times never will. (This would be to misunderstand presentism.) Rather, Le Poidevin uses the term to identify presentism with the following doctrines: 1) the extension of the existential quantifier is restricted to presently existing objects, because no past or future objects exist. 2) Cross-temporal relations are analysed in terms of some present fact. 3) The present truth is truth simpliciter. 4) Times are logical constructions out of propositions. And 5) Past and future statements are made true by present facts.[8] As we shall see in this chapter, what Le Poidevin means by 'temporal solipsism' should be acceptable to standard presentists.

4.5.1 Priorian presentism

The first version of presentism we consider is Priorian presentism. Prior's version of presentism is the temporal analogue of his version of actualism; the modal thesis that only actual objects exist. Hence in order to explain Priorian presentism, I shall begin by explaining Priorian actualism. [9]

Prior's version of actualism is motivated by his dislike of *unmodified* talk about mere possibilia. This is because Prior does not want 'possibly F' to entail that *there is* a thing that is a possible F. For example, suppose that F is the brother I could have had, if my parents had produced a son. Although I could have had a brother, Prior wants to deny that my possible brother is among the things that there actually are. I can wonder whether he would have been blue-eyed like me, but Prior denies that *there is* such a thing that has the property of being genetically similar to me. Prior also rejects any type of Meinongianism, the view that we can ascribe properties to a thing that does not exist, or say true things about it.

Prior expressed his dislike of mere possibilia by rejecting the Barcan formula.

- Barcan Formula: $\Diamond\exists x(Fx) \rightarrow \exists x\Diamond(Fx)$

In English: If possibly, for some x, x is F, then there is an x, which is possibly F.

---

[8] Le Poidevin (1991), p.36.

[9] In this section I am indebted to Zimmerman's handout and workshop presentation of 'Presentism, the Moving Spotlight Theory of Time, and Timelessly Eternal Things' at PETAF 'Space and Time Workshop'. University of Barcelona, 13-15 December 2012.

The Barcan formula says that for anything that could possibly exist, that thing *does* exist. Hence some regard this as affirming the necessary existence of everything.[10]

As Prior rejects the Barcan formula, he can affirm the antecedent, but deny that it entails the consequent. For Prior, the actual world is ontologically privileged, because it is the only concrete world that actually exists. Hence there is nothing that is not actual. Possible worlds are just abstract things (maximal, consistent propositions), which play a role in our modal talk about the ways things *could be* and the ways things *must be*.

Prior's way of avoiding the Barcan Formula involves holding that singular propositions depend for their existence on their subjects. Thus Prior holds the following:

- Necessarily, if the proposition that Fa is singular with respect to a, and true, then there exists an x such that Fx.

So whenever you have a proposition about a particular thing, you can quantify into the position of that name (meaning you can say 'there is at least one x such that…').

- Necessarily, if the proposition that it is *possible* that Ga is singular with respect to a, and true, then there exists an x such that, possibly, Gx.

- Necessarily, if the proposition that it *was the case* that Ga is singular with respect to a, and true, then there exists an x such that it was the case that Gx.[11]

So Prior applied this idea to both the modal and the temporal case. Given these assumptions, and his rejection of Meinongianism, Prior held the following.

- If an individual does not exist, there are no true singular propositions about it available to be true or false; if it could have failed to exist, then it is possible that there be no true, available singular propositions about it; and if it did not

[10] For example, Williamson.
[11] Zimmerman (2012), p.1.

(or will not) exist, then there were (or will be) no true, available singular propositions about it.[12]

Prior's rejection of the Barcan formula led him to distinguish between two kinds of necessity and possibility. (And he made a similar division in the temporal case.)

For Prior, 'necessity' and 'possibility' can mean two pairs of things.

- *Weak necessity* and *Strong possibility*
- *Strong necessity* and *Weak possibility*

Weak necessity for a proposition means that in no possible world is the proposition available to be true or false, and it's false there.

This is a very weak form of necessity. For example, take the proposition *Wolfgang is feline*. Since Wolfgang is essentially feline, the proposition *Wolfgang is feline* will be necessary, even though Wolfgang is not a necessary existent. Thus, in no world where we find singular propositions about Wolfgang, is the proposition *Wolfgang is non-feline* true. However, since Wolfgang does not exist in every possible world (as Wolfgang is not a necessary existent), in some worlds there is no truth about Wolfgang. This has the odd result that the proposition *Wolfgang exists* is weakly necessary. (Odd because we want to say that it's possble that Wolfgang does not exist.) However, if we understand what weak necessity means for Prior, it seems understandable. For example, in Prior's system, even though the statement 'Wolfgang exists' is logically true, and hence can never be false, *it is not always true*, because it is not 'always statable.'[13] This is because in worlds where Wolfgang does not exist, there are no facts about Wolfgang; hence the proposition is not available to be true or false.

Strong possibility can be defined in terms of weak necessity. A proposition is strongly possible if it is *somewhere* available to be true or false, and it's true there. So *Wolfgang does not exist* is not strongly possible.

---

[12] Ibid.

[13] Prior (1957), p.37. Hence in Prior's system Q (first presented in Prior 1957), necessity and possibility are not interdefinable.

Strong necessity means that a proposition is *everywhere* available and it's true. Thus, truths about mathematics are strongly necessary, and more general truths, like 'all cats are mortal'. However, *Wolfgang is feline*, is not strongly necessary.

Weak possibility can be defined in terms of strong necessity. It means that the proposition is somewhere either not available, or true. This is a very weak kind of possibility, because *Wolfgang does not exist* is weakly possible, which seems reasonable; but it also means that *Wolfgang is not feline* is also weakly possible, which is odd (given that Wolfgang is essentially feline). But if we understand these notions in terms of the *availability of propositions*, and their truth in the worlds where they are available, then these notions capture what we want to say about things that do not necessarily exist.

A brief digression. Not everyone likes Prior's way of denying the Barcan formula, or his division of necessity and possibility. Hence, other philosophers (such as, Plantinga and Robert Adams) have tried to appeal to haecceities in order to show that names do not introduce singular propositions in the case of non-existent objects. (And others have appealed to free logic to try to show the same.[14]) The idea is that haecceities are properties, which are identical to the property of being a particular individual (Socrates for example), such that they can only be exemplified by that unique object (Socrates). So Socrates' haecceity only comes into existence when Socrates comes into existence. However, the claim is that when Socrates goes out of existence, his haecceity 'Socraticity' remains in existence; thus, the sentence 'Socrates was a philosopher' *can* express a singular proposition about Socrates even though Socrates no longer exists. This is because the sentence expresses a proposition that there was a unique x who exemplified Socraticity, and this is held to involve Socrates in virtue of having Socraticity as a constituent.[15]

There is not space to discuss this approach in detail. However, I shall briefly mention a couple of points against the haecceties approach, which Markosian raises. First, Markosian points out that this approach can only work for propositions about past objects. He sees this as a defect, as he says that presentism should be able to provide an account for singular propositions about both past and future non-existent objects. Secondly, this approach requires an *ontological* commitment to the haecceities of non-existent objects; and Markosian says that as a presentist, he

[14] I do not discuss this approach.
[15] See Markosian, (2004), p.55.

cannot accept this. He therefore finds the haecceity approach of no help to the presentist.

Let us return to Prior. Prior's formulation of actualism enables him to express some entailments and entailment failures involving possibility, which are consistent with his actualism and his rejection of the Barcan formula. For example, we saw above that Prior held that: If 'Fa' is *singular* with respect to 'a', then from the truth of '◊Fa' one can infer the truth of '∃*x*◊(Fx) (there is something, which is a possible F).[16] However, since Prior denies the Barcan formula ◊∃x(Fx) → ∃x◊(Fx), he claims that the sentence having the form of '◊∃*x*(F*x*)' (possibly for some x, x is F) can be true, even though there is no sentence with the form '◊Fa' (possibly a is F) that expresses a truth.

For example, I can say that it is possible that I could have had a brother, and we could have been friends. For example, let 'C' describe my brother who could have existed:

1. ◊(∃*x*) (Rax & Cx)

In English: possibly, there could have been someone, with whom Rose is friends, who is Rose's brother.

There is no problem if (1) entails (2):

2. ∃y◊∃*x*(Ryx & Cx)

In English: there is someone, and there could have been someone, such that the first one is friends with the other one, and they are siblings.

But we would not want (1) to entail (3)

3. ∃y∃*x*◊(Ryx & Cx)

In English: there are two things, and, possibly, the first one is friends with the other one, who is the former's brother.

[16] Zimmerman (2012), p.3.

We do not want (3) to follow from the fact that I *could have had* a brother and I *could have been* friends with him.

So by rejecting classical possibilism, and taking □ and ◊ as primitive operators, Prior avoids Meinongianism and necessitism in the modal case. Prior thought that accepting either Meinongianism, about things like Pegasus, or accepting that everything necessarily exists (so there are these merely possible persons), was all superstition.[17] And Prior thought the same applied to the temporal case. For example, he thought the same was true with respect to past things like Socrates; for Prior, it is superstition to believe that there is (exists) such a thing as Socrates. So just as Prior held that only actual things exist, and hence what is *actually true* is what is *true simpliciter*, he also held that only present objects exist, and hence *what is presently the case* is what is *true simpliciter*.

As we saw in previous chapters, Prior's simple tense operators are:

- *P* = 'it was the case that'
- *F* = 'it will be the case that'

There is no present tense operator (*N* meaning 'it is now the case'), because Prior took the present to be redundant, given that whatever is presently true is true simpliciter.[18]

For Prior, *P* and *F* are *weak tense operators,* which are similar to 'possibly'. For example,

- *P* is a weak *was;* understood as meaning 'it has at some time been the case'.
- *F* is a weak *will be*; understood as meaning 'it will at some time be the case.'

Prior's two other tense operators *H* and *G* are *strong tense operators,* which are similar to 'necessarily.'

[17] Prior, A. (1967), p.139.
[18] Prior takes it that 'there is', 'there are', and 'there exists' in their basic English usage are tensed. Hence for Prior, '∃x' is the formalization of 'there is' in ordinary language, which implies 'there *now* is'. Prior (2003), p.171.

- *H* = 'it has always been the case that'
- *G* = 'it will always be the case that'

Hence ¬*P*¬ is an analogue of necessity in relation to the past. This is equivalent to *Hp*: *it has and always has been the case that*. This is a strong *was always*.

And ¬*F*¬ is an analogue of necessity in relation to the future. This is equivalent to *Gp*: *it is and always will be the case that*. This is a strong *will always*.

Hence, in the temporal case, the same kind of interpretations open up as they did in the modal case. For example, if we allow that what *was the case*, has *not always been the case*; or that what *will be the case*, has not *always been going to be the case*, then there are going to be singular propositions which are not available at different times. Thus, we get the temporal versions of the Barcan formula, where Prior claims that there are instances of these where the antecedent is true and the consequent is false.

- BF(temporal version): 'P∃x(Fx) → ∃xP(Fx)'

If F*a* is genuinely singular, then from 'P(F*a*)' one could infer that '*there is* something that is a former F.' So, in order to deny the temporal versions of the Barcan formula, Prior says that sentences with the form P∃x(Fx) ('it was the case that there is an F') can be true, even though there is no singular statement with respect to an individual that says of that individual that it is *F*.

Thus Prior's formulation of presentism (understood as the thesis that only present objects exist, and that the tenses (it will be, and it was the case) are primitive) enables him to get these entailments and failure of entailments, which are consistent with his rejection of the temporal version of the Barcan formula. For example:

(1*) P(Rab) E.g. 'Rose and Emma went to a party'. If that is true, that entails that *there are* a couple of things that (in the past) went to a party.

And (1*) entails (2*):

(2*) ∃*x*∃yP(Rxy) E.g. 'There are two things, one of which went to a party with the other.'

However, let 'C' uniquely describe someone who no longer exists, like my friend 'Piers.'

(3*) P(∃*x*)(Rax & Cx) E.g. 'Rose went to the party with the person who was Piers.'

(3*) entails (4*):

(4*) ∃*y*P∃xP(Ryx & Cx) E.g. There is someone and there was someone, and the first one went to a party with the other, who was Piers.

But we do not want (3*) to entail (5*)

(5*) ∃*x*∃yP(Ryx & Cx) E.g. There are two people, and the first one went to the party with the other, who was Piers.

This is because the presentist does not want to say *there is* a person who is Piers (at least if we think that Piers no longer exists).

So by applying modal logic to tense, Prior replaces worlds with times.[19] And in the temporal case, his distinction between a *weak was* and a *strong was always*, enables him to say that something that *was the case*, is not *always the case*. (And similarly for what *will be* the case.) So we have these entailments and failures of entailment, which are consistent with his rejection of the temporal Barcan formula.

The challenge facing Prior (as an actualist and as a presentist) is explaining how things can be true about various objects, which do not exist (i.e. merely possible objects, and non-present objects). On the one hand, in the modal case there is

[19] In the temporal case, the relevant accessibility relation is *preceding*, as the underlying ordering of times is one time being earlier than another. Note that in Prior's tense logic, the accessibility relation needs to be weaker than S5. (In modal logic, S5 embeds the assumption that every world is accessible from every world. This means that if something is necessary, then it's necessarily necessary, and if something is possible, then it's necessarily possible.) Prior needs the accessibility relations to be *weaker* than this. For example, in his tense logic he needs to show that certain propositions are *not available* at all times; i.e. at earlier and later times.

pressure to accept necessitism; the view that necessarily, everything necessarily exists. And in the temporal case, there is pressure to accept eternalism; the view that always, everything always exists. On the other hand, by rejecting the Barcan formula, there is a 'danger' of getting pushed into some sort of Meinongianism; and Prior wants to avoid this, because he accepts the Quinean idea that what exists exactly equals what there is. However, Prior is able to avoid both of these 'extremes', because he shows how we can talk about non-existent things, without there being singular propositions about those things. For example, Prior says 'the function of the operator *F* is … forming a future-tense statement from the corresponding present-tense one, and the future-tense statement is … about whatever the present-tense statement is about.' [20] He therefore avoids the entailment that statements about what was or will be the case, depend on the existence of past and future things.

Prior's account has been criticized for having some counterintuitive results. For example, Plantinga complains that if it is *weakly possibly* (sometimes not false) that Socrates exists, then it is *weakly possible* (sometimes not false) that Socrates ≠ Socrates. Plantinga's objection is that while it *should* be genuinely possible that Socrates does not exist, it *should not* be genuinely possible that Socrates ≠ Socrates; hence his complaint is that Prior's notion of *weak possibility* does not distinguish between Socrates' non-existence and his non-identity.[21] However, as Kit Fine explains, Plantinga has in mind a classical notion of possibility; understood as true at a world, regardless of the existence of individuals. In contrast, Prior's *weak possibility* only requires the existence of the proposition in the world in question. Thus, understood as Prior intended, *weak possibility* is harmless, because in any world where Socrates exists, Socrates = Socrates. Fine says that what Plantinga's criticism highlights is the fact that Prior is rejecting the classical concept of possibility, which assumes that we can stand outside all the worlds and survey their contents.[22] Indeed, Fine says that Prior's purpose in introducing the notion of weak possibility is to find an alternative way of expressing what is expressible using the classical notion of possibility.[23]

[20] Prior (1957), p. 8.
[21] Fine (2005), p.207.
[22] Ibid., p. 204
[23] Ibid., p.206.

Prior has a similar purpose in his tense logic; namely to provide an alternative way of expressing what is expressed by eternalism. Prior's project has been nicely summed up in the following way by John. P Burgess, who writes:

> The traditional main task of temporal logic, *Prior's project*, has been to understand how assumptions about the structure of time, expressed in the tenseless regimented language, with explicit quantification over "times" or "states", correspond to assumptions about the validity of various argument forms in the tensed autonomous language that do *not* involve such quantification. [24]

In my opinion, Prior's view is an invaluable contribution for those who want to describe temporal reality as something dynamic and genuinely changing; and for those who endorse propositional temporalism. That is to say, descrbing temporal reality in A-theoretic terms, which cannot be reduced to B-relations, in order to explain how what holds true at one time does not hold true at another. Moreover, for presentists, Prior provides a way of explaining how things can be interestingly true and false about objects that do not exist (wholly past and wholly future objects). For example, in saying what was the case, Prior shows that we need not be quantifying over wholly past objects, or expressing singular propositions about objects that no longer exist (and similarly for future objects). As we shall see, some presentists do not think that Prior's approach is entirely satisfactory. We shall consider one of the versions below (ersatzer presentism.) However, first I want to consider two more presentist approaches; Markosian's presentism, and Bigelow's Lucretian presentism. We begin with Markosian.

4.5.2 Markosian's presentism

In certain respects, Markosian has a similar approach to Prior. Markosian develops an interesting account of how to solve the problem of there being no singular propositions about non-existent *objects*, which we consider below. However, first I explain Markosian's account of what the presentist should say about non-present (and hence non-existent) *times*. Markosian explains that Prior treats a possible world as a maximal, consistent proposition. According to Markosian, we can

[24] John P. Burgess (2009), p.20.

understand this as an 'abstract actual world'.[25] He explains what he means as follows:

> Consider the actual world. There are really two of them. There is the abstract actual world, which is a maximal, consistent proposition. There are many things that are similar to the abstract actual world in being maximal, consistent propositions. Each one of them is a possible world. The abstract actual world is only one of these of all these possible worlds that happens to be true. And then there is the concrete world, which is the sum total of all the actual facts. The concrete actual world is the only concrete world that exists, and it is what makes the abstract actual world true.[26]

The idea here is that there are many possible ways things could be (possible worlds). And among the possible ways things could be are three possible worlds; one where snow is white, one where snow is pink, and one where snow is black. As snow is white in the concrete actual world, it is the concrete actual world that makes the abstract possible world in which snow is white true. Markosian continues:

> The presentist can say that it is the same with the present time. There are really two of them. There is the abstract present time, which is a maximal, consistent proposition. There are many things that are similar to the abstract present time in being maximal, consistent propositions that either will be true, are true, or have been true. Each one is a time. The abstract present time is the only one of all these abstract times that happens to be true right now. And then there is the concrete present time, which is the sum total of all present facts. It is the only concrete time that exists, and it is what makes the abstract present time true. Talk about non-present times can be understood as talk about maximal, consistent propositions that have been true or will be true.[27]

Markosian claims that the passage of time can also be understood in terms of maximal, consistent propositions. The idea here is this. Suppose that the time 2416 years ago (when Socrates was born) can be identified with a maximal, consistent proposition, called 'T'. T is false now, but it was true 2416 years ago.

---

[25] Markosian (2004.), p.76.
[26] Ibid.
[27] Ibid.

According to Markosian, this means that the past-tensed proposition that *it was that case 2416 years ago that T* is true right now. As time passes, in one year from now, the past-tensed proposition *it was the case 2417 years ago that T* will be true. Similarly for all other past- and future-tensed propositions; they will either become less future or further past, as time passes. Markosian says;

> Here, then, is the sense in which there are non-present times: there are some maximal, consistent propositions that will be true or have been true, but are not presently true. (This is analogous to the sense in which there are some non-actual worlds: there are some maximal, consistent propositions that are not actually true.)[28]

So like Prior, Markosian constructs times as sets of present-tense propositions. He then claims that as there is only ever one concrete time (the concrete present), the concrete actual world is identical to the concrete present world, such that it is the sum total of all the current facts. However, from this sum total of current facts, we can also say that what was and will be the case is true right now. This is because talk about past and future truths are understood as talk about maximal consistent propositions that have been or will be true.

Markosian has an interesting solution to the objection that, for the presentist, there cannot be singular propositions about non-present things. Markosian borrows Sider's notion of *quasi-truth* and uses this to develop an account of truths about non-present things, which are not literally true, but are 'good enough' in everyday circumstances. Markosian considers the sentence:

(1) Socrates was a philosopher.

He rejects the idea that this sentence can be analysed or paraphrased as:

(1a) P (∃x) (x is the referent of 'Socrates' and x is a philosopher).

This is because he says it does not have the same meaning as sentence (1), because that sentence was about a man, while the paraphrase is about a name. Secondly, sentence (1) expressed a singular proposition, whereas the paraphrase

[28] Ibid., p.78.

(1a) expresses a general proposition. And thirdly, he says that the two sentences would not have had the same meaning when Socrates was alive, so why would they have the same meaning just because Socrates is no longer alive. [29]

Markosian therefore suggests an alternative paraphrasing strategy. His idea is based on the following scenario. He imagines a situation with two worlds, the actual world *w* and a possible world w_1. In the actual world *w*, George W. Bush is president of the US, but in w_1 we are deceived into thinking that someone called George W. Bush is president, when he is not. Markosian says in that case, the sentence:

> George W. Bush is president of the US

does not express a singular proposition in w_1. This is because there is no such man in w_1. However, he says this does mean that the sentence is meaningless in w_1. Markosian says that declarative sentences can have two types of meaning. It can simply be the proposition expressed, which he calls the *propositional content*; or it can have a linguistic meaning, which is associated with the truth-conditions of that sentence.

Markosian says that this distinction enables us to deny that the above sentence has any propositional content in w_1, but to hold that it has linguistic meaning in w_1. This is because in both worlds, *w* and w_1, the sentence has the same truth-condition. Namely:

> 'George W. Bush is president of the US' is true iff (∃x) (x is the referent of 'George W. Bush' and x is the president of the US).

Hence the sentence is true in *w* and false in w_1, because in w_1 it fails to refer to anything, or express a proposition, and thus it has no propositional content.[30]

Markosian says that the citizens in w_1 will be convinced that the sentence expresses a true proposition in their world. We know, from our vantage point in the actual world, that they are wrong, but for them, the sentence still has linguistic meaning. Markosian says that we should apply the reasoning to the original sentence:

---

[29] Ibid., p. 58.
[30] Ibid., p. 67.

(1) Socrates was a philosopher

According to Markosian, the sentence has no propositional content, as Socrates no longer exists, but it still has linguistic meaning. He suggests that it has the following truth condition:

> ($TC1_g$) 'Socrates was a philosopher' is true iff (∃x) [(x is the referent of 'Socrates' and P(x is a philosopher)].[31]

Now, the sentence is not true, and it has no propositional content, but it does have linguistic meaning. Markosian notes that people could object to this, on the grounds that what matters to people is whether what they say is *true*.

Markosian's reply is quite pragmatic. First, he says that most English speakers are inclined to say that what is expressed by the sentence 'Socrates was a philosopher' is true. He says this may be because people tend to think more like non-presentists about past things. Speaking as presentist, he thinks they are wrong to think that (1) expresses a singular proposition, but he also says that this explains why they think it is true. Secondly, he notes that most people in their ordinary lives do not spend all their time worrying about ontology and metaphysical theories of time. Markosian says that it is enough to think that the sentence is *quasi-true*. By this he means that the sentence does not have to be literally true in order for it to be good enough for our everyday purposes. He defines quasi-true for a sentence as follows.

> S is *quasi-true* = df S is not literally true, but only in virtue of certain non-empirical or philosophical facts.[32]

Thirdly, he says that the reason why people will want to say that what (1) expresses is true, is that they make mistakes about the truth conditions of such sentences. For example, he says that they blur a distinction between two kinds of truth-conditions, which he calls *grabby truth conditions* and *searchy truth conditions*. Applied to the original sentence, these are as follows:

---

[31] Ibid., p. 68. Markosian explains the relevance of the subscript in ($TC1_g$) shortly.
[32] Ibid., p.69.

($TC1_g$) Socrates was a philosopher' is true iff (∃x) [(x is the referent of 'Socrates' and P(x is a philosopher)].

($TC1_s$) 'Socrates was a philosopher' is true iff P(∃x)(x is the referent of 'Socrates' and x is a philosopher).

Markosian then says:

> The difference between ($TC1_g$) and ($TC1_s$) has to do with the scope of the past-tense operator on the right-hand side of the biconditional. In ($TC1_g$) the past-tense operator has narrow scope, while in ($TC1_s$) it has wide scope. ($TC1_g$) tells us, in effect, to grab the thing that is now the referent of 'Socrates', and then go back to see whether there is some past time at which that thing is a philosopher. ($TC1_s$), on the other hand, tells us, in effect to go back to past times and search for a thing that is the referent of 'Socrates' and that is a philosopher. Thus, the difference between ($TC1_g$) and ($TC1_s$) illustrates a difference between what might call *grabby truth conditions* and *searchy truth conditions* for sentences combining names with modal operators.[33]

The question, says Markosian, is which truth-conditions should we apply (assuming presentism). Markosian says that if we apply ($TC1_s$) to (1) it may turn out to be true. But if we apply ($TC1_g$) then (1) turns out to be false. However, Markosian then claims that we should apply the latter ($TC1_g$).

He says that in the case of

(1) Socrates was a philosopher.

The current truth of (1) depends on how things have been with the person who is currently the referent of 'Socrates'. But if that sentence had a searchy truth condition;

($TC1_s$) 'Socrates was a philosopher' is true iff P(∃x)(x is the referent of 'Socrates' and x is a philosopher).

[33] Markosian (2004), p.70.

The searchy truth condition could be true now in virtue of the fact that someone else was formerly the referent of 'Socrates' and a philosopher, even if our current Socrates was never a philosopher. (The idea here seems to be that things in the past could have been different from how we currently think they were.) So instead, Markosian says that we should apply the grabby truth condition;

> ($TC1_g$) 'Socrates was a philosopher' is true iff (∃x) [(x is the referent of 'Socrates' and P(x is a philosopher)].

In the case of the grabby truth condition, its linguistic meaning will stay the same, even when (1) no longer has any propositional content (i.e. when Socrates goes out of existence). So Markosian claims that:

> These considerations suggest that the conventions of English are such that two things will normally be true of any standard sentence combining standard uses of names and a past-tense operator: (i) like other sentences containing standard uses of names, that sentence will express a singular proposition about the referent of that name, if it expresses any proposition at all; and (ii) that sentence will have a grabby truth condition.[34]

This means that assuming presentism, sentence (1) 'Socrates was a philosopher' will not be true. But Markosian says that this does not really make much difference, as the difference between the grabby and searchy truth-conditions are quite subtle. Moreover, although the grabby truth condition mean that (1) is not literally true, but quasi-true, it has a linguistic meaning, which remains stable and captures what most English speakers normally want to say when they say that Socrates was a philosopher. Markosian also points out that most people would say that the sentence 'Socrates was a philosopher' is true because there was a person called Socrates who was a philosopher, and not because there is a person who was a philosopher.

I think that Markosian makes an interesting argument in favour of presentism. If we cannot refer to Socrates or express singular propositions about him, as he no longer

[34] Ibid., p.71.

exists, then I think the notion of quasi-truth *is* good enough for most our purposes.[35] Moreover, I find his account of non-present times persuasive. This is because it not only offers the presentist a way to talk about other times; it also enables them to explain how truths change as time passes.

4.5.3 Lucretian presentism

We now consider our third version of 'standard' presentism, John Bigelow's Lucretian presentism. I shall only summarize the main points of this argument. In 'Presentism and Properties' Bigelow is concerned to address the problem of cross-temporal relations. Bigelow addresses two aspects of this objection. The first objection, which Bigelow calls the argument from relations, goes like this:

> (P1) Relations can only hold between two existing things.
> (P2) Present things do seem to stand in relations to non-existent things.
> (C) Contrary to presentism, non-present things exist.

In response, Bigelow says he grants the first premise, as he considers it an a priori truth that a two-place relation can only hold between two things, and therefore there must be two things which stand in that relation.[36]

The second objection, which Bigelow calls 'the argument from causation', is as follows:

> Causation is existence symmetric: if an event exists and is the cause of some other events, then that other event exists. And if an event exists and it is caused by some other event, then that other event exists. Some present events are caused by events that are not present. And some present events are the causes of other events which are not present. Therefore things exist which are not present.

In response to these two arguments, Bigelow considers how the two types of Hellenistic philosophers managed to hold on to presentism in the face of the

[35] Ingthorsson makes a similar point. Given that the past and future do not exist, he questions whether it is serious problem if there are no truths about the past and future. He suggests that having rationally justified beliefs about non-present things might be good enough. See Ingthorsson (2016), p.136.
[36] Bigelow (2010), p.129.

argument from causation. The Stoics appealed to the idea that the causal relation holds between two presently true propositions. For example, the causal relation holds between two true propositions at one time (the man is wounded and the man will die), and at a different time, the causal relation holds between the two true propositions (the man is wounded and the man is dying). So as a former proposition ceases to exist, another one replaces it. Bigelow says that this account of propositions changing their truth-value is similar to Prior's account; except that for Prior propositions did not cease to exist, they just ceased to be true.[37] However, Bigelow says that both accounts preserve presentism by appealing to the present existence of propositions. Hence they deny that cause is prior to effect; since both cause and effect are present propositions.[38]

According to Bigelow, Lucretius was not willing to accept the existence of propositions, as he believed reality only consisted of atoms and voids. So to preserve presentism, Lucretius claimed that whatever events take place in the physical world, that location retains the tensed property of having been the place where (for example) the Trojan's were conquered. Lucretius described past events as accident of matter, which can be thought of as *accidental* properties that the physical world retains.

Bigelow adapts this idea, and says:

> I suggest a modification of the Lucretian doctrine. One of the things that exists is the whole world, the totality of things that exist. The world can have properties and accidents, just as its parts may have. It is a present property of the world, that it is a world in which Helen was abducted and the Trojans were conquered.[39]

Bigelow's idea is that the Stoic's true propositions are now identified with a property that world as a whole acquires, such that it retains past-tensed properties for every event that occurs within it. Thus, when the Trojan's were conquered, the world acquired the property *being such that the Trojan's were conquered.* And so on for every event throughout history.

---

[37] Since Prior holds that the same proposition can be true or false on different occasions.
[38] Ibid., p.133.
[39] Ibid., p.135.

According to Bigelow, this merging of the Stoic's idea with Lucretius' idea of tensed properties, which are retained by the world, provides the presentist with a way to answer the argument from relations and the argument from causation. The casual relation only holds between presently instantiated properties and hence relations do not have to hold between things that exist at other times.

The idea of these presently existing properties with traces of the past is quite appealing to the presentist. However, Bigelow does not explain anything more about the content of these properties, or how the world would be different if they did not exist; I mean, how are we to know whether they do continue to exist? Bigelow does say that 'at any given time, you can grasp truths which transcend your present, and describe the world *sub specie aeternitatis'*.[40] The idea being that one could collect all the temporal truths. So perhaps this hints at an answer to how these traces are preserved.

4.5.4 Ersatzer presentism

The final version of standard presentism we consider is ersatzer presentism. Ersatzer presentists, such as Thomas Crisp and Craig Bourne, are concerned with the problem of how presentists can provide truthmakers for contingent truths about non-present objects, such as the truth that Socrates existed. Unlike Priorian presentists, they do not appeal to primitive A-properties in order to ground truths about the past and future, or explain facts involving cross-temporal relations. Nor do they appeal to the idea that the past leaves traces in the present. Instead, they appeal to an *abstract* or ersatz B-series, which is analogous to the eternalist's *concrete* time series, but exists at no temporal distance from the present. I consider Bourne's account here.

Bourne claims that his version of presentism is an improvement over Priorian presentism. He says this is because ersatzer presentism has a more adequate account of what makes propositions about non-present objects true. Bourne also claims that ersatzer presentism can accommodate truth-value links across times, whereas other versions of presentism cannot. For example, Bourne says that versions of presentism which hold that the present contains all of the facts needed to make past, present, and future-tensed propositions true, have no mechanism to

[40] Ibid., p.136.

guarentee that if *p* holds presently, that **PFP***p* must hold in the future. Moreover, he says there cannot be any transtemporal links across times, since other times are held not to exist.[41]

Bourne explains that he goes 'some way with Prior … in constructing times out of sets of present-tensed propositions.'[42] However he says that ersatzer presentism differs from Prior's presentism in important ways. First, Bourne distinguishes present-tensed propositions containing either **P** or **F** operators, which he calls 'embedded propositions' (or *e*-propositions), from those that do not, which he calls 'unembedded propositions' (or *u*-propositions). He gives the following examples:

- An *e*-proposition: it is now the case that it was the case that Socrates is sitting (i.e. **NP***p*).
- A *u*-proposition: Socrates is sitting (i.e. **N***p*), or simply; Socrates is sitting (i.e., *p*.).[43] (So *u*-propositions are 'tense-operator-free propositions'.)

Bourne's criticism of Prior is that he 'required the present to be equated with *e*-propositions in order for the present to supply all of the truths we believe there are.'[44] The problem here, according to Bourne, is that in the case of *e*-propositions, such as, **NP**(Socrates is teaching Plato), it is unclear what makes such propositions true.[45] For example, he says that Prior invokes the primitive present fact that Socrates taught Plato, but he is unable to say how this fact is structured. This is because its constituents cannot be Socrates or Plato (since they no longer exist). And there cannot be some mysterious object, such as a present-past Socrates. Thus Bourne says that Priorian presentism 'leaves us with an obscure ontology'.[46]

Bourne notes that Prior holds that the question of what *makes* such truths true does not need answering. For example, he says 'for Prior, there is nothing more to say about the nature of time than is said by a perspicuous tense logic'.[47] (The idea being that tense logic enables the presentist to say that it is (now) the case that certain propositions (e.g. Socrates is teaching Plato) *were* true, and other

[41] Bourne (2006), p. 45.
[42] Ibid., p.52.
[43] Ibid., p.53.
[44] Ibid., p.43.
[45] Since Prior held that the present tense operator N was redundant, he would express this *e*-proposition as P(*p*).
[46] Ibid., p.44.
[47] Ibid., p.43.

propositions *will be* true, although they are not true now. This gets the truth conditions right, and allows the truth-values of propositions to vary over time.) However, Bourne says that since for Prior 'propositions are themselves "logical constructions" out of the objects they are about', more needs to be said about *how* such propositions can be true.[48] This seems to be a fair point.

Bourne therefore proposes 'constructing times using maximally consistent sets of *u*-propositions.' He says these *u*-propositions would 'give a complete, maximally specific description of what is true at that time.'[49] Thus, for each past and future time, there is a set of propositions that gives a complete description of how the world *was* or *will be* at that time; and according to Bourne, these sets of propositions are *times*. Additionally, these times then need to be ordered by the *tenseless* B-relation earlier-than (which Bourne calls the *E*-relation). Bourne's idea is that the *E*-relation orders the ersatz time series such that it is 'structurally similar to a real time series, so that it can be taken to be a sufficient substitute.'[50] He explains this as follows:

> We can introduce the ordered triple <**T**, *E*, *t*>, where **T** is a set, *E* is a relation on **T**, and $t \in \mathbf{T}$. Intuitively, **T** is the set of times, *E* is the 'earlier than' relation, and *t* is a particular time.

He continues:

> Times I take to be more than sets of present-tensed propositions; first, they consist of sets of *u*-propositions; second, they also contain a 'date'. That is, I take times … to be ordered pairs of the form $t = <\mu, n \in \mathbb{R}>$, where μ is a set of *u*-propositions and $n \in \mathbb{R}$ is the date. Times can now be defined as those ordered pairs of the form $t = <\mu, n \in \mathbb{R}>$ that are members of the set of sets of ordered pairs of the form $t = <\mu, n \in \mathbb{R}>$ that are *E*-related.[51]

On this view, all times are abstract times (sets of propositions), including the present. Although this means we do not inhabit the concrete present time, Bourne says that the presentist can say that 'we inhabit the concrete realization of the present time'.

---

[48] Ibid., p.44. (Prior never reached a settled view about what such propositions are about.)
[49] Ibid., p.53.
[50] Ibid.
[51] Ibid., p.54.

Thus ersatzer presentism is *not* the view that only one time exists. Rather it is the view that only one time has concrete realization.[52]

The *E*-relation is therefore not the genuine *earlier than* relation, since it does not relate *concrete* objects in the spatiotemporal manifold. However, Bourne says it *represents* 'the *earlier than* relation in the way that it relates times.' That is, 'the properties the *E*-relation has matches whatever we take to be the properties of the genuine earlier than relation.'[53] Hence Bourne says the ersatzer presentist has available an ersatz time series, related by the *earlier than* relation 'without being committed to existence of real, or rather concretely realized, relata.'[54] According to Bourne, this gives the ersatzer presentist an advantage over other presentists, as she can take such relations as basic. She therefore has all the *relata* she needs to account for various transtemporal relations, and ground truths about non-present objects. Moreover, she has a clear ontological basis for her claims about such objects.

Bourne also explains that the *E*-relation is also suited to a one-many relation in the direction of present to future; i.e. 'the direction in which dates increase with magnitude.'[55] He says that this gives the presentist good reason for adopting a branching structure, which can explain the direction of time, and account for the open future. Because of this, Bourne holds that certain contingent future-tensed statements presently have indeterminate truth-values. However, the *E*-relation is a one-one relation in the direction of the past. The importance of this concerning past-tensed propositions is explained below.

The second way in which ersatzer presentism is importantly different from Priorian presentism is that Bourne distinguishes between truth *simpliciter* and truth-at-a-time. (This is analogous to the modal distinction between true *simpliciter* and true-at-a-world.) Bourne says that 'truth *simpliciter* is an absolute non-time relative notion', in contrast to the time-relative notion of truth-at-a-time. For example, Bourne holds that propositions that are true relative to the *present time* are true *simpliciter*. Thus, he says:

---

[52] Ibid.
[53] Ibid.
[54] Ibid., p.55.
[55] Ibid.

- 'Socrates is sitting' is true-at-a-time iff there is a time, i.e., *E*-related ordered pair $<\mu, n \in \mathbb{R}>$, such that μ includes the *u*-proposition that Socrates is sitting, i.e., 'p' is true-at-a-time $<\mathbf{T}, E, <\mu, n \in \mathbb{R}> >$ iff $p \in \mu$.

Whereas:

- 'Socrates is sitting' is true *simpliciter* iff Socrates (i.e. an actual, concrete, flesh and blood Socrates) is presently sitting.[56]

(Hence it is not true *simpliciter* that Socrates is sitting.) However, Bourne says that past-tensed truths can also be true *simpliciter,* although in a very different way. For example, he says:

- *It was the case that p* is true *simpliciter* iff *p* is a member of a set $<\mu, n_i \in \mathbb{R}>$ actually E-related to the presently instantiated ordered pair $<v, n_j \in \mathbb{R}>$, where v is the set of u-propositions that is true *simpliciter*, and $n_i < n_j$.[57]

Thus for Bourne, what makes past-tensed propositions (such as *it was the case that Socrates is sitting*) true *simpliciter* are 'actually *E*-related ordered pairs of *u*-propositions and dates.'[58] Here the date index (n_i) is smaller than the date index of the time that obtains (n_j); the time that is present. By 'actually', Bourne means the only (i.e. single) *E*-related branch that is accessible from the concretely realized time (the present) in the direction towards the past. The idea here is that being actually *E*-related 'grounds which *E*-related branch we should use for finding truthmakers for past-tensed statements.'[59]

The advantage Bourne sees for this account over Prior's is this. Prior held that what is true now is what is true *simpliciter*. For Prior, what is now true is *P*(Socrates is sitting). And as we have seen, Bourne complains that it is unclear what the constituents of this proposition are. In contrast, Bourne claims that the proposition *it was the case that Socrates is sitting* is true *simpliciter*, and that this proposition is

[56] Ibid., p.56.
[57] Ibid., p.57.
[58] Ibid.
[59] Ibid. Bourne allows that some future-tense propositions are true *simpliciter*. Namely future-tense propositions that are *determinately* true. Here the dates in question are greater than the one that obtains (in the present).

made true by pairs of *E*-related propositions and dates, where one date is smaller than the other date of the time presently realized. According to Bourne, the ersatzer presentist can explain what *makes* such facts true, since its constituents are not mysterious.

To complete this picture, Bourne discusses quantification in tensed sentences. Bourne takes the existential quantifer as tenseless. He says that (∃*x*)*Fx* should be read in 'the standard objectual way', such that ''(∃*x*)*Fx*' is true *simpliciter* iff there is at least one object in the domain of quantification that is *F*.'[60] Bourne adds that 'despite being read tenselessly (∃*x*)*Fx* might change truth-value … because of the continually changing concrete facts and subsequent change in domain quantification.' Thus:

> '**P**(∃*x*)*Fx*' is true at <**T**, *E*, *t*> (and it is true *simpliciter* iff the set of propositions at *t* is true *simpliciter*) iff (∃*x*)*Fx* is a member of some μ element of a time earlier than *t* (understood in an ersatz way), where (∃*x*)*Fx* is true-at-a-time <**T**, *E*, <μ ,*n* ∈ $\mathbb{R}$> > iff (∃*x*)*Fx* ∈ μ.[61]

Hence Bourne's view differs from eternalism here, since the eternalist's domain of quantification *never* changes. This is important, since Bourne characterizes the flow of time as the change in truth-value of tensed propositions over time.[62]

Next Bourne considers the case of *de re* claims, such as '(∃*x*)**P***Fx*', where the operator falls *within* the scope of a quantifier. Here, Bourne explains what makes a *de re* claim true, when it concerns how a *presently* existing individual *x was* in the past. He says first, a *de dicto* claim about how *x* tenselessly was in the past must be true. (e.g. **P**(∃*x*)*Fx*') is true). Secondly, the *de re* proposition must be 'appropriately connected' to this *de dicto* claim in a way that guarantees that the *x* identified in the *de re* proposition is *the same* as the *x* identified in the *de dicto* proposition. (Hence both propositions are *about* the same individual.) Bourne says that this depends on whether 'presentism can help itself to the idea of a causal connection across different times.'[63] We return to this point shortly.

---

[60] Ibid., p.58.
[61] Ibid., p.58.
[62] Ibid., p.77.
[63] Ibid., p.60.

Bourne also appeals to causation to explain *how*, in the case of merely past individuals such as Socrates, we can determine that our use of the name 'Socrates' is *about* Socrates and not someone else. Bourne has already ruled out that the proposition *Socrates is sitting* can be about the real (flesh and blood) Socrates, or his individual essence. However, he wants to know *what* are we talking *about* when talk about merely past objects; since he says that there must be something.[64] Bourne claims that his account, which involves ontological commitment to times, provides a solution.[65]

For example, Bourne says that his ability to talk about Socrates is the 'result of the name being passed from one person to another along a causal chain (consisting of appropriately connected facts).'[66] The idea here is that all we need to talk *about* Socrates is that there was an initial naming ceremony for the real Socrates, in which he was referred to. Subsequent uses of the name 'Socrates' are then connected *in an appropriate causal way* to the fact that someone referred to Socrates. Bourne explains that once Socrates ceased to exist, abstract times *represent* Socrates; and the causal connections between all the facts that represent Socrates, guarantee the truth-value links between them.[67] Hence, there is no ontological commitment to past and future objects in transtemporal relations, but the ersatzer presentist can quantify over causally related abstract objects, which *represent* Socrates in the ersatz B-series. Thus, Bourne reduces transtemporal relations to causal relations, but *denies* that causal relations are genuine relations holding between concretely existing *relata*.

In these ways, Bourne claims that ersatzer presentism is able to say what *makes* certain statements about merely past objects true. For example, the ersatzer presentist can say what the constituents of facts about them are, and explain certain transtemporal facts by explaining the truth-value links between such facts. Bourne also claims that ersatzer presentism provides an easy way to escape McTaggart's paradox. This is because all concrete facts are present facts, and all other facts are abstract, and hence tenseless; hence it is never that case that facts instantiate more

---

[64] Ibid. p. 101.
[65] Ibid., p.103.
[66] Ibid., p.104
[67] Ibid., p.59. Bourne's discussion of how causal connection across different times can be available to the presentist is not very clear. (pp 109-135.)

than one tense.[68] Since ersatzer presentists quantify over ersatz times, they have available the same range of times as the B-theorist. However, the contents of these times are not concretely existing objects located in the B-series. Thus Bourne says that ersatzer presentism cannot be said to be the tenseless theory under another name, because the constituents of ersatz past and future times are radically different from those of the tenseless theorist.[69]

Bourne therefore claims that the advantages of ersatzer presentism is that it allows us to 'state truths about the past; it wears its ontological commitments on its sleeve; and it ensures that truth-value links are preserved.'[70] Additionally, he claims that it accommodates common-sense ideas about time and is ontologically parsimonious. Is he correct to claim these things?

My main criticisms of Bourne are as follows. His discussion of causation is unclear and he does not commit to a particular account. This is frustrating, given that his account of truth-value links between facts *depends* on there being an appropriate causal connection between them. Suppose we grant that causation can be accommodated in his theory; questions remains about how truth-value links work when there is no current 'witness' to a particular fact. For example, when there is no present evidence for a past-tensed fact. Bourne does not offer an explanation of how we can guarantee the truth-value of past-tensed statements in such cases.

A second worry is whether we should accept that abstract entities, which merely *represent* pastly and futurely existing objects, are the right sort of thing to serve as truthmakers for statements about the past and future. The worry here is that truth is not grounded in the concretely existing present, which is something presentists should want. (For example, ersatz times cannot make it that case that Socrates taught Plato.) On Bourne's view, truth is grounded in abstract representations of non-existent pasts and futures. Here again, Bourne's account rests heavily on the claim that truth-value links can be guaranteed in a causal-history of naming, which connects truths across time to their original referents. These are issues that Bourne needs to address to make his account of truthmakers for non-existent objects more plausible, and ontologically transparent. We might also question whether Bourne's

[68] Ibid., 78.
[69] Ibid., pp.66-67.
[70] Ibid., p.64.

presentism is ontologically parsimonious, given that it relies on postulating an (additional) ersatz B-series.

Finally, Bourne offers an account of change *in* reality, claiming that ersatz B-times provide the necessary relata. Hence Bourne is sympathetic to Fine's objection that a single present is too static for change. As we have seen, the Priorian presentist can respond by saying that a change *of* reality is precisely what change and passage consists in. However, since Bourne provides an account that involves claiming that the present set of concretely realized objects changes as time passes, his account appears to offer the presentist a satisfactory 'alternative' account of change; that is, an account that involves a change *in* reality.

4.6 Neo-Meinongian Presentism

In this section, we discuss a different type of presentism; one that does not hold that what exists (or what is real) is exhausted by what there is now. On this account, what there is extends way beyond what there is now and what exists now. This is a neo-Meinongian approach. However, in order to distinguish it from standard Meinongianism, we need to explain what Meinong held to be the case. And in order to do this, it is helpful to begin by contrasting Meinong's ideas with what Quine held to be the case.

4.6.1 Quine's anti-Meinongianism

As we have seen, Quine held that terms like 'thing', 'there is', 'there exists', 'there actually is', and 'there actually exist', all have exactly the same extension. Thus, according to Quine, for any thing that is or exists or is actual, that thing must be within the domain of our most unrestricted existential quantifier. For Quine our most unrestricted domain therefore includes all past, present, and future entities, and non-concrete (i.e. abstract) things like sets, which have clear identity conditions. This meant that Quine had to employ various paraphrase techniques to explain our talk about fictional entities, and also merely possible entities, which he held do not exist. Quine also held that expressions such as 'thing that exists now' just pick out a sub-part of the whole domain. They do not, as the standard presentist would claim, pick out the entire domain. Hence for Quine, there are dinosaurs. So when we say 'there aren't dinosaurs now', we are just talking about the restricted part of the domain where we happen to be.

Quine also held that people tend to get confused when they talk about things that are not concrete. For example, my phone is a concrete object that is in my bag, but my concept of my phone is not in my bag; it is in my mind. And whereas my phone has certain properties, such as a shape and a weight, my concept of my phone does not have those properties. But Quine says that when people are not considering things like concrete particulars, they get more confused, and fail to distinguish the concept of *x* from *x* itself. For example, people have the concept of Pegasus, but they also think that Pegasus does not exist, so they get muddled about what sort of object they are talking about when they talk about Pegasus. Quine also thought that people get muddled when it comes to truths about things that do not exist. There is this idea that there are certain truths about what does not exist (i.e. singular negative existentials) that require that Pegasus be either something, or something there was, or both; even though Pegasus does not exist. (And clearly, the truth of 'Pegasus does not exist' cannot require the existence of Pegasus, since the sentence says 'Pegasus does not exist'.) But a lot of people have thought that it did require that there *be* something, which was Pegasus.

Similarly, Quine thought that people get muddled about things like the round square, or Atlantis. So the thought is that when people say 'the round square doesn't exist', they somehow refer to the round square. So you are referring to something, so something is the round square; and since there is something that you are referring to, something that there is, is the round square. Obviously round squares do not exist; but to explain why it is true that round squares do not exist, what you need is some kind of referent for 'the round square'. And similarly, you need some kind of referent for 'Pegasus', when you say 'Pegasus does not exist'.

According to Quine, part of the problem here is due to confusion between meaning and naming. Hence Quine's strategy for dealing with these issues involves here providing various paraphrases for these things for non-existent objects. So Quine appeals to paraphrasing strategies, such as Russell's theory of descriptions. Quine also allowed that definite descriptions could involve strange predicates, such as 'pegasizes.' Here 'Pegasus' translates into the description 'the x that pegasizes', which we can refer to without referring to a non-existent object like Pegasus. The idea is that such paraphrases get rid of the things that do not exist, because we are just referring in a general way to things there are; and saying something about the features that they have and don't have. Hence, for Quine, these sorts of strategies

give us a way to explain why certain negative existential statements are true. And this removes the need for any type of Meinongianism, which posits things that do not exist.

4.6.2 Meinong's theory of objects

In Meinong's ontology, there are objects that exist and objects that do not exist. An object, for Meinong, is the thing towards which a thought (or mental state) is always directed. Meinong's theory of objects was developed as a means of examining these objects of thought. For Meinong, objects of thought include *real objects*, such as tables and chairs; *ideal objects*, such as the number of chairs around the table; *possible but non-existent objects*, such as the golden mountain; and *impossible objects*, such as the round square. He argued that if we can think about an object, there must be 'some sense' in which that object exists. For example, if we can think about a possible-but-non-existent object, such as the golden mountain, then even though it does not exist in the real world, it must exist 'in some sense' in the realm of thought. Similarly, if we can think about an impossible object, such as the round square, then there is 'some sense' in which that object exists. This is what enables us to refer to that object, even though it does not exist.

An object can roughly be thought of as a thing that can bear properties. Thus the round square may bear the properties of being round and being square. Meinong distinguished between the Sein of objects (their existential status), and their Sosein (their having of certain properties). He claimed that an object can have a set of properties even if it doesn't exist. Meinong called this the 'Principle of Independence'. According to Meinong, we can refer to, and quantify over, nonexistent objects. Thus 'Pegasus is a winged horse' can be taken at face value, treating the singular term occurring as the grammatical subject as a genuine referring name. Hence this avoided the need for all the paraphrasing that Quine had to do.

In Meinong's ontology, the most extensive term is 'some' or 'thing', whereas the term 'thing there is' is less extensive. So Meinong's idea is not that we can say 'there are more things than there are', as that is a contradiction, but rather that we can say 'there are some things that there aren't.' For Meinong, talk about the golden mountain or the round square does not mean that *there is* something that is a golden mountain or the round square. Hence for Meinong, although everything is

something or other, not everything is something or other that *there is*. The set of things that *there are* is a proper sub-set of the set of things. And some things there aren't.

4.6.3 Neo-Meinongianism

Not many people want to endorse full-on Meinongianism. This is because very few philosophers want to say that there are some things that there aren't. Hence Neo-Meinongians adopt a more moderate view than Meinong. For example, in contrast to Meinong, the neo-Meinongian holds that everything is something *there is*, but they deny that there are things that there aren't. And in contrast to Quine, they *deny* that everything that *there is* is something that *exists*. So there are more things than there exists; so *there is* is more extensive than *there exists*.

There are number of a neo-Meinongians, including Francesco Berto, Dale Jacquette, Ernst Mally, Terence Parsons, Graham Priest, Richard Routely, and Edward Zalta. Each neo-Meinongian theory has its own comprehension principle and identity criterion for objects, which due to lack of space I cannot discuss in any detail.[71] However, the point of these identity criteria is to enable them to identify a unique object, and hence give it clear identity conditions. These neo-Meinongians believe that there are some objects that do not exist, and that we can generally refer to them, and make true claims about them because they are in the domain of our most unrestricted quantifier. This gives them the advantage of being able to explain why we can say things that are true about things that do not exist, such as the golden mountain, or Atlantis. Like Meinong, neo-Meinongians also hold that non-existent objects can bear properties, such as being gold and being a mountain.

Chisholm identifies a number of statements that cannot be paraphrased by Russell's theory of descriptions. These are statements about things which neo-Meinongians have no difficulty in making true claims about. For example, 'the mountain I am thinking about is golden' would only come out false if it was paraphrased in the Russellian way. (And similarly so statements about fearing ghosts or worshipping

[71] For example, Parsons, Routely, and Jacquette adopt a Nuclear Comprehension Principle. This distinguishes between nuclear properties, which constitute the *Sosein* of an object, and extra-nuclear properties, which do not. Here existence is held to be an extra-nuclear property. Mally adopts a Dual Copula Comprehension Principle, which exploits an ambiguity in 'is' in order to distinguish between two types of predication, such that non-existent objects *encode* properties, but do not *exemplify* them. Priest has a modal Meinongian theory, which involves reference to possible and impossible worlds. See Berto (2015), pp. 110-112.

the same God.) So neo-Meinongians can say that all the things *there are* are values of bound variables, although she will deny that being the value of a bound variable, or being among the things *there are*, is the same as (or is sufficient) for existing. This gives her an advantage over Quineans, who believe that what there is, is what is in the domain for quantifiers to range over, and that 'what there is' equals 'what exists'.

4.6.4 Neo-Meinongian presentism

So certain philosophers argue for neo-Meinongianism for reasons to do with how we refer to non-existent entities and make true statements about them. For example, it enables them to talk about such things and refer to them, without having to go through lengthy paraphrasing strategies employed by Russell and Quine. However, philosophers do not typically think of applying neo-Meinongianism to presentism. I think that presentists are missing an opportunity here. Neo-Meinongianism provides presentists with many of the things they need in order to meet the various objections to presentism. For example, it provides then with ways of explaining truths about non-present things and various cross-temporal relations.

One of the objections to presentism is that the presentist cannot account for certain cross-temporal relations. For example, the objection says that the presentist cannot give us an account of what it is to be, for example, the great-great-granddaughter of Charles Dickens, or what it is to stand in the *admiring relation to* Socrates. And similarly for truths about non-existent objects, or past objects, such as 'Socrates taught Plato'. The objection to the presentist (as we have seen) is that presentists cannot account for truths about Socrates, and neither can they refer to Socrates, because Socrates does not exist.

A second issue concerns events. We think of ordinary non-instantaneous events as extending and spreading out over time. So it is unclear how a presentist is supposed to accommodate this; if indeed she can accommodate it at all. (Prior denied the existence of events.) So take a non-instantaneous event, like reading this chapter (call this event x). It is easy enough to believe in a non-instantaneous event like x. What we want to say is something like this; only part of x is happening now. And that seems right. Not every part of this x is happening now. Only the present part of x is happening now. But if we say that only part of this x is

happening now, if that is true, then there are parts of this x that are not happening now. So if only some of x is happening now, then some of x is not happening now.

So talking about events involves a quantifier of the sort that presentists will have trouble with. For example, standard presentists think that the only things and individuals that there are, are things and individuals there are now, and the only *events* that take place are events that take place now. So it is unclear how you can say something like, 'some parts of the event, which is the reading of this chapter, are not happening now' if you are a presentist.

When these objections are directed at standard presentism, they put presentists under a lot of pressure to explain truths about non-present objects, or to explain how present things can stand in relations to non-present things. But for a neo-Meinongian presentist, the worry about admiring Socrates does not seem particularly pressing. This is because I can say that, if I'm thinking about Socrates, then we have an X and a Y, such that X is me and Y is Socrates, and X stands in the *thinking about relation* to Y. The X is real, and the Y is not real. This relation can hold between me and Socrates, because there is such a thing as Socrates, even though he does not exist.

So the neo-Meinongian presentist can say that she is a presentist (and accepts that only present objects exist), but also that does not mean that she thinks that the only things there are, are the things that there are now. She can be happy to say that there are things that there aren't now, but used to be. And she can be happy to say that there are things that there aren't now, but will be. But the things that there aren't anymore, or the things that there aren't yet, are things that do not exist.

In this way we get a version of presentism, which says the existent, or the real, is exhausted by *what there is now*, but *what there is* extends beyond *what there is now*. And if that kind of neo-Meinongianism is defensible, then it seems like none of these arguments about quantifiers, like with the Dickens case (above), tell against standard presentism. Because the basic structure of those arguments is that presentists have to deny that there is an x and there is a y, such that x is Dickens and y is 'her' (i.e. his great-great granddaughter). But presentists do not have to deny that if they can be neo-Meinongians, because their quantifiers can go beyond what exists and go beyond what is real.

Similarly so for events. If you are a neo-Meinongian, then you could say that there are the parts of the event, and then there are parts of the event that exist. So you can say not all of the event is happening now, but all of the event that is real is happening now. So while neo-Meinongianism is often thought about in connection to fictional objects, it has a strong connection to presentism. So if neo-Meinongianism is viable, then a very standard objection to presentism (that it involves quantifying over things that do no exist), looks at best inconclusive. This is because neo-Meinongianism gives the presentist a way of going round that.

So if we are neo-Meinongian presentists, we can have a very extensive domain, and have available all the things that eternalists have available to quantify over in their most unrestricted domain. It is also not difficult to see that there are some very strong parallels between quasi-Meinongian presentism and Williamsonian presentism. The major point of difference between the two views is that what the neo-Meinongian presentist calls non-existent (i.e. things in the past and the future), the Williamsonian presentist calls non-concrete.

4.7 Conclusion

In this chapter, we have considered what the various versions of presentism are, and how different presentists might respond to the objections made against presentism. And as we have seen, there are various ways that both standard and non-standard presentists can respond to these objections. The Priorian presentist holds that tense logic is sufficient to explain the nature of change and temporal passage, avoid McTaggart's paradox, and offer an account of what makes truths about the past and future true. Other standard presentists feel that more needs to be said. For example, Markosian invokes the notion of quasi-truth to explain what most English speakers normally want to say when they make claims about the past. Bigelow appeals to Lucretian properties, existing in the present to provide truthmakers for our statements about the past, and Bourne appeals to an ersatz B-series to explain what makes propositions about non-existent objects true. If neo-Meinongianism is a viable theory, then it gives the presentist an easy way to respond to these objections, as it provides the presentist with the resources it needs to explain how we can refer to, and make true statements about, non-existent objects, and also to explain cross-temporal relations that involve quantifying over things that exist at past and future times. I think this is an area that presentists should seriously consider and explore. In the final chapter, we consider where this

leaves presentism, in terms of being a viable theory; including how presentists might respond to the objection from physics.

Chapter 5. Conclusion: Time on the Clapham Omnibus

5.1 Introduction

Presentism is the thesis that only present objects exist.[72] The question this thesis considers is: is presentism is a viable theory? The purpose of this chapter is to argue that presentism is a viable theory, and explain why I think this is so. This is, first and foremost, a *defensive* claim. I shall argue that presentism can fulfill the various desiderata identified in Chapter 1, and therefore that presentism is defensible. However, I shall also suggest that as presentism also preserves many of our pre-theoretic opinions about time and what it is to exist at a time, there may be good reasons to prefer presentism to its non-presentist rivals. As will be explained, this is because non-presentist theories only fulfill the desiderata identified at the cost of many of our common-sense opinions about time.

In Chapter 1, I argued that presentism is the common-sense view of time because many of our ordinary ideas about time imply much of presentism. These include ordinary ideas about change, the passage of time, and our beliefs about the non-existence of merely past and merely future objects, and what we can say is true of such objects, and our ideas about how we persist in time. The challenge for presentism, to use Lewis' phrase, is to 'expand these ideas into an orderly system'. As we have seen, critics of presentism claim that it cannot do this, since presentism lacks the resources to account for change, temporal passage, cross-temporal relations, and explaining what makes truths about the past and future true. Moreover, in accounting for change, presentism needs to meet the challenge facing all A-theories; namely, to explain how they avoid McTaggart's paradox. There is also the challenge from physics; the objection that presentism is inconsistent with The Special Theory of Relativity (SR), and should therefore be rejected.

In the section on methodology, I considered various desiderata for an adequate metaphysical theory of time. I agreed with Dyke that compatibility with our best current physics is a key desideratum for a metaphysical theory of time. (For reasons explained below, I now amend this to 'to be consistent with our best current physics if that is possible.') However, in contrast to Dyke, I also agreed with Lewis

[72] Markosian (2014), p.47. Marksioan adds in footnote 1: 'more precisely, it is the view that, necessarily, it is always true that only present objects exist.'

that respecting our pre-existing or common-sense opinions about time is a key desideratum. As we saw, Lewis argues that the role of philosophy is to find ways of expanding our pre-existing opinions into an orderly system.[73] Lewis explains that this is *not* in order to justify these opinions, or treat them as infallible; rather, he says:

> It's just that theoretic conservatism is the only sensible policy for theorists of limited powers. … The proper test … is a simple maxim of honesty: never put forward a philosophical theory that you yourself cannot believe in your least philosophical and most commonsensical moments.[74]

Since I think Lewis is correct here, I take it that the most important desiderata are being consistent with our best physics (if that is possible), and respecting our common-sense ideas about time. Other issues identified by Dyke, such as compatibility with ordinary language, elegance, and ontological parsimony will be considered of less importance.

We can list the five desiderata for an adequate metaphysical theory of time, as follows:

1. To be consistent with our best current physics, if that is possible.
2. Offer an explanation of the nature of change.
3. Avoid McTaggart's paradox
4. Make sense of the intuitive notion of the passage of time.
5. Offer an account of what makes truths about the past and future true.

5.2 The thesis question: Is presentism a viable theory?

In order to answer this question, I want to invert it. For example, as someone who has strong pre-theoretic opinions about time, which imply much of presentism, I am happy to call myself a presentist. And as a philosopher who has journeyed through this thesis, I also feel entitled to speak on behalf of the man and woman on the Clapham omnibus at 'reflective equilibrium'. So the question I ask is this:

- Have I discovered anything that gives me a reason not to be a presentist?

[73] Lewis (1973), p.87.
[74] Lewis (1986a), p.134.

And in order to give a satisfactory answer, I ask a second question:

- What would it take to persuade me not to be a presentist?

The desiderata come into play regarding this second question. For example, I can think of three main things that would make me change my mind about presentism.

1. If presentism is shown to be inconsistent with our best current physics. (Subject to the proviso mentioned above.)

2. If accepting presentism forces me to give up other important common-sense opinions I have. For example, if accepting presentism forces us to give up our common-sense views on change or persistence, that is a good reason to abandon presentism. And since part of accounting for change and passage involves explaining how presentism avoids McTaggart's paradox, presentism needs to do this too. The inability to explain what makes past and future tensed truths true, might not be a reason to *abandon* presentism. However, it is still a desideratum that presentism can explain this, given that other theories can explain what makes truths about the past and future true. Thus we can say that if the *presentist thesis* (that only present objects exist) cannot be embedded in a *presentist metaphysics*, which expands our firmly held pre-theoretical opinions into an orderly system, this might be thought of as a reason not to accept presentism.

3. If an alternative metaphysical theory of time could systematize my pre-existing opinions about time, and what it is to exist at a time, in a way that is superior to any presentist theory of time.

I shall therefore discuss each of these things in turn, under the following headings.

- The Challenge from Physics. Here I discuss the claim that presentism is inconsistent with our best scientific evidence about time.

- An Orderly System? Here I consider how the presentist can expand our pre-existing opinions about time into an orderly system. This includes accounting for:

- Change
- Avoiding McTaggart's paradox
- Explaining temporal Passage
- Explaining what makes truths about the past and future true.

- Superior Alternatives? Here I consider whether alternative metaphysical theories of time can expand our pre-existing ideas about time into a system in a way that is superior to presentism.

I shall then weigh up the pros and cons of the various positions we have considered in the metaphysics of time, and say what my preferred version of presentism is.

5.3 The Challenge from Physics

As we have seen, the challenge to presentism from physics comes from the Special Theory of Relativity (SR). According to standard interpretations of SR, reality consists of a four-dimensional spacetime manifold. Within this picture there is no privileged frame of reference, since we have no way of establishing this. This is taken to show that there is no such a thing as absolute simultaneity, and hence that there is no property of absolute presentness. As presentism implies that there is a property of absolute presentness, it is claimed that if SR is true, presentism is false. In contrast, the picture of reality SR that gives us sits well with eternalism, since according to eternalism all times exist on a par in the four-dimensional manifold.

Presentists typically respond by pointing out that although SR entails that we have no way to *observe* whether two events are absolutely simultaneous, this does not entail that there is no such thing as absolute simultaneity.[75] Moreover, I have argued that there are enough unresolved issues within physics itself to show that the question of whether there is such a thing as absolute simultaneity is not settled. For example, questions about the measurement problem in quantum mechanics, and issues concerning the incompatibility of general relativity with quantum mechanics, are as yet unresolved.

[75] For example, the neo-Lorentzian response challenges the verificationist assumptions in standard interpretations of SR. (Neo-Lorentzians claim that physics does not show that the speed of light is constant in both directions.)

There are two things to say here. The first is that if physics has not got its house in order (i.e. if physics itself contains inconsistent theories), then it is an unreasonable demand to make of *any* philosophical theory that it be consistent with physics. So (if physics has not got its house in order) presentism does not need to show that it is *consistent* with physics, as this would be impossible for any theory.

The second is that physics has some theories that might even speak in favour of presentism. For example, understanding the collapse of superposition in ways that make it look presentist-friendly (i.e. ways that suggest there is superluminal communication). So although there are other things in physics that speak against that, it looks as though physics is not sure what to say about absolute simultaneity. In which case, we can say that physics leaves presentism defensible.

5.4 An orderly system?

If physics leaves presentism defensible, as I have claimed it does, this means that the ordinary opinion that 'now' is unique in a way that 'here' is not (which implies presentism) can be treated as a respectable (as opposed to naive or unreasonably egocentric) part of the presentist system. More specifically, we can say that it has *not* been shown that the presentist's claim that only present objects exist is refuted by physics. We now consider whether presentism can accommodate other common-sense ideas, starting with our ideas about change.

5.4.1 Change

Lewis claims that presentists cannot account for change because they do not believe in the past and the future. According to Lewis, change involves an object having incompatible properties at different times. He says that since presentists restrict reality to the present (and therefore deny the existence of non-present objects), they cannot describe change, because they deny that there is (exists) anything to have incompatible properties at non-present times.

In response, the presentist can say that Lewis' argument is question-begging. Lewis says that if you are a presentist, you cannot believe that you have a future. But this is not the case, since presentists certainly believe that they have a future (and had a past). So Lewis does *not* show that you cannot believe that you will exist in the future (or did exist in the past), *unless* you believe that there is more to reality

than the present. That is to say, Lewis does not show us that believing that there is more to reality than the present is a necessary condition for believing that you will exist in the future or that you did exist in the past. The presentist could add that Lewis' perdurantist account of change is not an account of 'change' anyway. This is because on Lewis' temporal parts account, intrinsic properties are *permanent* properties (of their subjects); that is, all intrinsic properties are had by their bearers whenever they exist.

Similarly, Fine complains that presentism is too static to account for change, because he claims that change involves a change *in* reality. In contrast, the presentist typically holds that the passage of time involves a change *of* reality. However, even if there *is* some reason for thinking that there has to be change in reality, and not just change from reality to reality, Fine has not shown that that is so.

As we have seen, standard presentists construct times out of maximal, consistent, propositions, which they use to describe how reality (itself) changes with the passage of time. The Priorian presentist uses primitive tense operators to describe what is true right now, including what was true and what will be true. Since Prior holds that propositions can vary in truth-value, he holds that what is (now) the case, is not always the case. Prior has an ontology of things, which change as one qualitative state ceases to exist and another begins to exist, and he uses primitive tense operators to describe how things change. Hence for Prior, change is not a cross-temporal relation (involving abstract times); rather it is a basic feature of the world.

Ersatzer presentists include abstract times in their ontology, understood as sets of maximal consistent propositions that form an ersatz B-series. Since ersatzer presentists allow quantification over these abstract B-times, they have available all the relata (which Lewis and Fine seemingly require) to describe how objects and reality are at different times.[76] Similarly, neo-Meinongian presentists can also describe how reality changes. This is because their domain of what there is, is more extensive than their domain of what exists (which is restricted to present objects). So the neo-Meinongian presentist also has available all the relata she

[76] As we have seen, this is fairly straightforward when it comes to changes involving existing concrete (i.e. presently existing) objects. However, the ersatzer account becomes less clear when this involves merely past objects, as it relies on an account of casually connected truth-links.

needs in order to describe a change. That is, she can quantify over things that there used to be, even though these things do not exist. She therefore can use these things that do not exist to develop an account of truthmakers for claims such as, 'the leaf was green (then)' when she explains how the leaf changes from green to red.

To sum up. The arguments of Lewis and Fine do not show that presentists cannot account for change. Presentists have a number of ways to describe change. Priorian presentists use primitive tense operators to describe a change of reality. Ersatzer presentists can describe how reality changes by describing changes between things that *exist* at the concretely realized present time, and things that are *represented* by abstract B-times, (where this includes non-existing objects). Neo-Meinongian presentists can describe how reality changes by describing changes between things that *exist* (presently existing concrete objects), and things that *there are*, which do not exist.

5.4.2 McTaggart

McTaggart's argument for the unreality of time, involves the claim that time requires change, and change requires the A-series. However, McTaggart claims that the A-series is contradictory, and hence that there is no change, and time is unreal. As we have seen, all A-theorists have to explain why their particular version of the A-theory avoids McTaggart's paradox. It is generally acknowledged that the presentist has an advantage here.[77] This is because presentism provides an easy answer; namely, that the structure of reality prevents there from being incompatible tensed facts. Thus, according to presentism, if I am sitting (now), I am not any other way.

Mellor argues that what McTaggart's argument shows is that tense is unreal, since an account of change involving A-properties is contradictory. Mellor claims that tensed statements can be given tenseless truth-conditions (i.e. explained in terms of properties of times); and thus that there are no genuine tensed facts (or A-facts). If Mellor is right that tense is unreal, then presentism is false, since presentism implies the doctrine of the reality of tense. However, all that Mellor's argument shows is that the conjunction of tense and eternalism is untenable. And since presentism rejects eternalism, Mellor's argument does not worry the presentist. Moreover, Mellor's claim that the B-theory is sufficient for the reality of time rests on his claim

[77] For example, as noted by Cameron (2015), p.68.

that the B-theory can account for change. As was explained in Chapter 3, I find Mellor's account of change unconvincing, because his account of B-theoretic-endurantism appears to involve diachronic bi-location, and I cannot see how to make sense of this.[78] Nor do I find other B-theoretic accounts of change convincing. This is because they either suggest that objects do not have any intrinsic properties, or that different temporal parts of objects have intrinsic properties permanently, which seems to rule out intrinsic change.

To sum up: the presentist can avoid McTaggart's paradox; and Mellor's argument to show that tense is unreal does not undermine this claim.

5.4.3 Temporal Passage

Temporal passage is closely related to change and McTaggart's paradox. We have already seen (above) that the presentist can explain the passage of time in terms of tensed propositions being true at different times. The presentist does *not* think of the passage of time in the way that McTaggart described it; that is, as an A-series moving along a B-series. Rather, as Prior points out, 'the flow of time' is just a metaphor.[79] And the presentist uses this metaphor to express the truth that there are irreducible tensed facts, which change over time.

On the presentist's picture, reality changes from moment to moment, as moments of time lapse as new moments of time become actualized. Some philosophers think that this idea is problematic because it requires a hyper-time in order to explain the rate at which time passes. I agree with Prior that this line of thinking is confused. For example, Prior responds to the question of the 'rate of change' as follows:

> Surely the answer to this question is obvious. I am exactly a year older than I was a year ago; it has taken me exactly a year to become a year older; and quite generally, the rate of this change is one time-unit per time-unit. Nor does any mysterious 'supertime' enter into this calculation. It has taken

[78] As noted already, Lewis and many other B-theorists accept that the B-theory implies perdurantism. A-theortists, such as Cameron (2016), Carter and Hesteveld (1994), Craig (2000b), Ingthorsson (2016), Merricks (2007) also deny that the B-theory can be combined with endurantism.
[79] Prior (1962), p.1.

> exactly one year of ordinary time for my age to increase by one year of ordinary time, and that is all there is to it.[80]

Prior can therefore can side-step this issue, since his answer fits with his view that to be present is simply to exist. I think this is a good response.

The presentist also has an advantage, since she can claim that our *experience* of the present and our *experience* of temporal passage support her belief in the objective reality of tense. In contrast, the B-theorist has to explain the experience of presence in terms of something else, such as tenseless facts. (As Mellor says, 'the inescapable presence of experience is something we *B*-theorists must explain away.'[81]) As we have seen, such accounts ultimately rest on the B-theorist's accounts of change, which I have argued are unpersuasive.

Our experience of passage also gives the presentist grounds for explaining the direction of time. For example, we experience reality from the perspective of a transient present moment, which appears to be continually replaced by a new present moment, which has never been present before, and will never be present again. However, we remember times that have been present, whereas the future seems yet to be; moreover, we age, and things grow and decay. So our experience of passage sits well with the idea that temporal reality is future directed. Unlike the eternalist A-theorist, the presentist does not have to worry about the 'when am I?' problem. This is because according to presentism, only present objects exists, so if we are aware of being present, we can be certain that we are in the present.

To sum up: presentists can provide various ways to account for our intuitive notion of the passage of time.

5.4.5 Truths about the past and the future.

The issue of what makes truths about the past and the future true is held to be problematic for presentists. This is because presentists do not have the obvious resources that eternalists have, when it comes to saying what makes facts about the past and future true. This is to say, they do not have an unrestricted domain containing past, present, and future existing objects.

---

[80] Ibid. p.2.
[81] Mellor (1998), p.44.

Prior was happy to say that what is true now is true simpliciter. For the Priorian, as I type the sentence 'Rose is typing' that is just true; and what that sentence reports is a fact. But when you read that sentence, what it reports will no longer be true; instead, what will be true is P(Rose is typing). Prior held that some of the facts are just irreducibly temporal facts (just as some of the facts are irreducibly modal). According to Prior, we do not have to think that there is a further *entity*, which makes the sentence that expresses that fact true.

However, others object that Priorian presentism suffers from a lack of truthmakers for truths about the past and future. (We should note that this criticism involves the *assumption* that the presentist should be able to supply truthmakers for claims about the past and future.) The objection to invoking primitive tense operators is that they do not tell us what makes true statements, such as P(Socrates taught Plato), or P(dinosaurs exist), since they do not have anything in their ontology to ground these statements.[82] On Prior's view, the fact that Socrates taught Plato is not *about* Socrates and Plato; and many people find this unsatisfactory.

Markosian's notion of being 'quasi-true' does not really tell us what the proposition that Socrates was a philosopher is *about*, or what makes it true. But it does provide a way of explaining how the sentence 'Socrates was a philosopher' has a linguistic meaning, which stays stable even when Socrates ceases to exist. Hence, Markosian says that although the sentence 'Socrates was a philosopher' is not literally true, as it has no propositional content (as Socrates no longer exists), we can say that it is 'quasi-true'. Markosian says this is 'good enough' for everyday purposes.[83] In contrast, Bigelow's account of Lucretian properties, the idea that the past leaves traces in the present, is too vague to provide an account of what makes the sentence 'Socrates was a philosopher' true.

Ersatzer presentists try to say more about what makes statements about the past and future true. The ersatzer presentist claims that the ersatz B-series is constituted by ordered sets of propositions, and that these can *represent* merely

[82] For Prior, putting a sentence in the past (or future) tense by prefixing it with a primitive past (or future) tense operator, involves specifying a mode of *unreality* regarding whatever the sentence is *about*.

[83] We should note that for Markosian the sentence 'Socrates does not exist' *is* literally true, as Socrates is not part of reality. So this respects presentism's appeal to the common-sense idea that when we say 'x no longer exists' or 'x does not yet exist' what we say is literally true.

past individuals, such as Socrates. The ersatzer presentist claims that she can explain what makes propositions about merely past individuals true, and also explain what the constituents of such propositions are (abstract objects that represent real objects). As we have seen, the success of this account depends on there being an appropriate causal connection between facts across time, which I have suggested would benefit from further development.

Finally, the neo-Meinongian presentist can explain what makes truths about the past and the future true, as she holds that the domain of *what there is* includes all the things that there were or will be, which do not exist now. The neo-Meinongian presentist can quantify over these things, and make true statements about them. Since Neo-Meinongians distinguish between 'there is such a thing as x', and 'x exists', they have to face various questions, such as what properties things that do not exist have, and how they avoid violating the law of non-contradiction. Although I have not elaborated on the details of the various neo-Meinongian accounts, I believe that neo-Meinongians can provide answers to these questions. I think neo-Meinongian presentism is a good option, as I find it a primitively quite intuitive idea that there are things that do not exist.

Presentists therefore have a number of ways to explain what is true, including what was true and what will be true. However, presentists have a harder time giving a systematic account of what *makes* what is true, true. While not all of these accounts provide truthmakers for truths about objects that no longer exist, or do not yet exist, others do; namely, ersatzer presentism and neo-Meinongian presentism. So as long as presentists accept that there are some kinds of abstract entities, they can offer some account of what makes truths about the past and future true. In this respect, it is not clear that the presentist's position is any worse off than the modal actualist's position. So, although these presentist theories leave us with certain questions and puzzles, such as how reality is rich enough to make it true that Socrates taught Plato, these puzzles do not strike me as unsolvable.

To sum up: presentism can account for our ordinary ideas about intrinsic change, the intuitive notion of the passage of time, and the possibility of time. Although presentism has a hard time providing a fully worked out account of truthmakers for past and future-tensed statements, this does *not* show that presentists could not have such an account. It therefore seems that we can build a systematic theory of change, and of the passage of time, and the possibility of time, which includes the

presentist's thesis that only present objects exist. The ontological picture of reality that presentism gives us (that reality does not expand beyond the present) is a fairly commonsensical one. And since presentism is not refuted by physics, the claim that only present objects exist is a viable one. I therefore conclude that presentism is a viable theory.

5.5. Superior Alternatives?

I claim that presentism is a viable theory. However, presentism leaves us with certain puzzles. And in responding to various objections, presentism takes us some way from common-sense opinion. (For example, talk of maximal consistent propositions, quasi-truths, ersatz times, and things that there aren't, are not part of common-sense thinking.) Moreover, presentist accounts like Prior's involve quite complicated logic, which might be seen as inelegant or unparsimonious. So is there a metaphysical theory of time that can systematize our ordinary opinions about time in a superior way to a presentist theory of time?

The major defect that A-theorists find with the B-theory is that it cannot account for change and temporal passage in an adequate way. For the B-theorist, all change is explained as some kind of variation in the manifold. Similarly, temporal passage is either reduced to being located at *t* at one time and *t'* at another, or involves an account of causation or entropic increase, in which there is no 'genuine' change (change that is not merely variation). B-theoretic accounts of change do not sit well with common sense.

The B-theorist is typically seen to have an advantage when it comes to truthmaking, since she has available all times and their contents to explain what makes various facts true at different times, and she does not have to invoke ideas about abstract entities. However, the B-theorist's account of truthmaking is not very commonsensical. For example, the B-theorist holds that 'dinosaurs exist, but not now'; and this is likely to leave most people baffled. And similarly so for individuals we consider to be dead. For example, we do not ordinarily say 'Queen Victoria exists, but not now'; we say that she *did* exist, but no longer exists.[84]

[84] Eternalists like Lewis appeal to the idea that we often restrict the domain to things that exist now; and that with that restriction in place, 'Queen Victoria exists, but not now' will be necessarily false. But it is not clear that this is the right account. For example, in the spatial case, Lewis would admit that we can say 'there's no beer here' (e.g. in the fridge) and have that come

Moreover, although the B-theorist claims that she can explain what makes the proposition *Socrates taught Plato* true, if she is a perdurantist, this really means that a temporal slice of Socrates taught a temporal slice of Plato at time *t*. Once again, this is not what people ordinarily mean when they think of Socrates teaching Plato. Nor is this how we ordinarily think of persisting individuals. As Prior remarked:

> One thing that tense logic is designed precisely to facilitate is talk of persisting objects, and one thing that it is designed precisely to avoid is the introduction of pseudo-entities, like 'me-at-*t*', 'me-at-*t"*', etc.'[85]

Some might think that eternalist-A-theories (and semi-eternalist theories) are closer to common sense, as they claim that reality changes as time passes, and that this involves some sort of 'genuine' change, which is not mere variation in the manifold. However, in order to avoid McTaggart's paradox, non-presentist A-theories go to some lengths to distinguish presently existing objects from past, or past and future, objects. This includes employing some of the strategies used in Cameron's moving spotlight theory, or Sullivan's version of 'Williamsonian presentism'. I find these ideas unappealing as they postulate very unintuitive ways of 'existing'. For example, ideas such as, *existing but not concretely*, or *existing concretely but not having a shape or colour*, are not part of our common-sense thinking about existence and change. There are similar worries with the status of past existents in the growing block, and Smith's idea of having *degrees of existence* seems highly counterintuitive.

5.6 Weighing things up

So we have all these different views, and it seems that with each of them we are not going to avoid certain puzzles or counterintuitive ideas. Each of the theories considered have their strengths and weaknesses. B-theoretic accounts do not have to invoke abstract or intensional objects. However, according to A-theorists, B-theorists provide inadequate accounts of change. And not only do B-theoretic accounts of persistence fail to cohere with our ordinary ideas about how we persist

---

out true in the restricted domain, but also say 'there *is* beer, but not here' (meaning there is beer elsewhere.). But in the temporal case it is not clear that we can truly say 'Queen Victoria *does* exist, but not any longer', and explain this in the context of domain restriction. This is because it still sounds like a contradiction.

[85] Prior (1967), p.170.

through time, B-theorists disagree among themselves about change and persistence.

Non-presentist A-theories disagree about the status of existing but non-present objects, and invoke complicated and counterintuitive accounts of what it is to exist at non-present times. In comparison, presentists can give a relatively simple view of existence, change and persistence (presentism just comes out as an endurantist theory). The major difficulty for presentism, as we have seen is explaining what makes truths about the past and future true. However, the abstract entities invoked by some presentists provide them with ways of doing this.

5.7 Presentism

Which is my preferred version of presentism? Speaking personally, as someone who is not convinced that we need truthmakers in order to justify our claims about the past and the future, I am happy to accept Priorian presentism and adopt Markosian's notion of quasi-truths. However, I am aware that is a minority view, which is unacceptable to philosophers for whom the issue of providing truthmakers is a serious one. Presentists who share this opinion (that truths require truthmakers) have the option of either adopting ersatzer presentism or neo-Meinongian presentism. Of these options, I think that neo-Meinongian presentism has more going for it. In many respects, Neo-Meinongian presentism comes very close to Sullivan's 'Minimal A-theory' and Cameron's spotlight theory. The major difference being that the neo-Meinongian presentist does not have to provide complicated and counterintuitive accounts of what is involved in 'existing' at non-present times. If neo-Meinongianism is viable, which I think it is, then neo-Meinongian presentism offers the presentist a positive alternative to standard presentism. I think this option should be explored.

5.8 A simple maxim of honesty

Lewis recommends that we:

> Never put forward a philosophical theory that you yourself cannot believe in your least philosophical and most commonsensical moments.[86]

[86] Lewis (1986a), p.134.

Presentism has various puzzles, and presentists often have complicated accounts of how to explain how things can be true at non-present times, which involve abstract objects, maximal consistent propositions, and quasi-truths. However, I do not find a theory involving such things hard to believe in. What I cannot believe in is a theory that suggests that I am a temporal part of a four-dimensional object, which is spread out along a timeline in the spacetime manifold. Nor can I believe that Queen Victoria exists, but not now. It might be comforting to think of lost loved ones concretely existing at previous times, and to think of ourselves as somehow existing eternally in this way, but that is not something I can believe. And since I also do not believe the Quinean maxim that what exists equals what there is, I am happy to prefer presentism to eternalist A-theories. That is to say, I do not think that non-present things have to *exist* in order for there to be truths about them, or in order to for us to be able to explain change or temporal passage. As presentism is a defensible theory, and since I think presentism is closer to our common-sense ideas about time and existing in time, I see no reason not to be a presentist, and I think there are good reasons for presentism to be preferred.

Bibliography

BERTO, F. and Plebani, M. (2015) *Ontology and Metaontology*, London:Bloomsbury Publishing Plc.

BIGELOW, John (2010) 'Presentness and Properties' in *Presentism,* E. Magalhaes and L. N. Oaklander (eds.), Lexington Books: Rowman & Littlefield Publishers, Inc.

BOURNE, C. (2006) *A Future for Presentism*, Oxford: Oxford University Press.

BURGESS, J. P. (2009) *Philosophical Logic*, New Jersey: Princeton University Press.

CALLENDER, C. (2012) 'Time's Ontic Voltage'. In *The Future of the Philosophy of Time*, ed. A. Bardon, New York: Routledge.

CALLENDER, C. & HUGGETT, N. (2001) *Physics meets Philosophy at the Plank Scale*, Cambridge: Cambridge University Press.

CAMERON, R. (2015) *The Moving Spotlight*, Oxford: Oxford University Press.

CARTER, W. and HESTEVOLD, H. (1994) 'On Passage and Persistence'. *American Philosophical Quarterly,* 31: 269-283.

CORREIA, F. and ROSENKRANTZ, S. (2014) 'Living on the Brink, or Welcome Back, Growing Block!', *Oxford Studies in Metaphysics Vol. 8.* Oxford: Oxford University Press.

CRAIG, W. L. (2000a) *The Tensed Theory of Time – A Critical Examination,* Dordrecht: Kluwer Academic Publishers.

——— (2000b) *The Tenseless Theory of Time – A Critical Examination,* Dordrecht: Kluwer Academic Publishers.

CRISP, T. (2007) Presentism and the Grounding Objection, *Nous,* 41, 90-109.

——— (2004) On Presentism and Triviality, in *Oxford Studies on Metaphysics*, *Volume 1.* ed. Zimmerman, Oxford: Oxford University Press.

DAINTON, B. (2001) *Time and Space*, Durham: Acumen Publishing Limited.

DIEKS, D. (2016) 'Physical Time and Experienced Time' in *Cosmological and Conscious Time*, Y. Dolev, M. Roubach (eds.), Boston Studies in the Philosophy and History of Science 285 (Springer).

DENG, N. (2012) 'Fine's McTaggart, Temporal Passage, and the A Versus B-Debate'. *Ratio* 26:1.

DUMMETT, M. (1960) 'A Defense of McTaggart's Proof for the Unreality of Time', *Philosophical Review* 69.

DYKE, H. (2012) 'On Methodology in the Metaphysics of Time', in *The Future of the Philosophy of Time*. A. Bardon (ed.) London: Routledge.

EINSTEIN, A. PODOLSKI, B. and ROSEN, N. (1935) 'Can Quantum-Mechanical Description of Physical Reality be Considered Complete?' *Physics Review*, 47: 777-780.

EINSTEIN, A. (1948) *Harper's Magazine,* Harper: New York, Volume 196.

—— (1955) Reprinted in *Albert Einstein and Michele Besso Correspondence 1903 - 1955*, ed. P. Speziali, (1972) Paris: Hermann.

FINE, K. 2005, *Modality and Tense*, Oxford: Oxford University Press.

GEACH, P. T. (1979) *Truth, Love and Immortality*, London: Hutchinson & Co. (Publishers) Ltd.

GREENE, B. (2004) *The Fabric of the Cosmos*. London: Penguin Books.

—— (2012) *The Fabric of the Cosmos*, Part 3 'Quantum Leap', Nova: PBS.

HANSON WAHLBERG, T. (2009) *Objects in Time: Studies of Persistence in B-time*, Lund: Media-Tryck.

GOODMAN, N. (1966), *The Structure of Appearance*, 2nd ed. New York: Bobbs-Merrill.

HAWLEY, K. (2001) *How Things Persist*, Oxford: Clarendon Press.

HOERL, C. (2014) 'Do we (seem to) perceive passage? *Philosophical Explorations* 17 (2):188-202

INGTHORSSON, R. (1999) 'Understanding McTaggart's paradox', *Metaphysics in the Post- Metaphysical Age Vol. II*, Papers of the 22nd International Wittgenstein Symposium.

—— (2016) *McTaggart's Paradox*. Routledge: New York.

LE POIDEVIN, R. (1991) *Change, Cause and Contradcton.* London: Macmillian.

—— (1998) *Questions of Time and Tense*. Oxford: Oxford University Press.

—— (2002) 'Zeno's Arrow and the Significance of the Present', in Craig Callender (ed.), Time, Reality and Experience, Cambridge: Cambridge University Press, pp. 57-72

—— (2007) *The Images of Time*. Oxford: Oxford University Press.

LOUX, M. J. (2002) 'Concrete Particulars II', *Metaphysics: A Contemporary Introduction*, New York and London: Routledge.

LEWIS, D. K. (1973) *Counterfactuals*, Oxford: Blackwells.

—— (1986a) *On the Plurality of Worlds*, Malden, MA and Oxford: Basil Blackwell.

LUCAS, J. (1973) *A Treatise on Time and Space,* London: Methuen & Co Ltd.

MARKOSIAN, N. (1994) 'The 3D/4D Controversy and Non-Present Objects', in *Philosophical Papers 23*, pp. 243-249.

——— (2004) 'A Defense of Presentism' in *Oxford Studies in Metaphysics, Volume 1.* ed. Zimmerman, Oxford: Oxford University Press.

——— (2013) 'The Truth about the Past and the Future' in Fabrice Correia and Andrea Iacona (eds.), *Around the Tree: Semantic and Metaphysical Issues Concerning Branching Time and the Open Future* (Springer).

MCTAGGART, J. E. (1908) 'The Unreality of Time', in R. Le Poidevin and M. McBeath (eds.), *The Philosophy of Time* (1993). Oxford: Oxford University Press.

——— (1921) *The Nature of Existence*, Volume 1. ed. C. D. Broad London: Cambridge Universty Press.

——— (1927) *The Nature of Existence*, Volume 2. ed. C. D. Broad, London: Cambridge Universty Press.

MELLOR, D H. (1998) *Real Time II*, London: Routledge.

MERRICKS, T. (2007) *Truth and Ontology.* Clarendon Press: Oxford.

MILLER, K. (2013) 'Presentism, Eternalism, and the Growing Block', in *The Companion to the Philosophy of Time*, Blackwell Publishing.

OAKLANDER, L. N. (2009) 'Time and Existence: A Critique of "Degree Presentism", from Maria Elisabeth Reicher (ed.) *States of Affairs,* New Brunswick, Frankfurt, Lancaster, Paris: Ontos verlag.

——— (2011) 'A- B-, and R-Theories of Time: A Debate.' Cosmological and Consicous Time Workshop, the Van Leer Jerusalem Institute, Jerusalem, Israel. June 27-28, 2011. https://www.youtube.com/watch?v=nKX7yk5T4UM

——— (2012) 'A- B-, and R-Theories of Time, A Debate' in *The Future for the Philosophy of Time*, ed. A. Bardon, New York: Routledge.

POOLEY, O. (2013) 'Relativity, the Open Future, and the Passage of Time'. *Proceedings of the Aristotelian Society* 113, pp. 321–363.

PRIOR, A. (1967) *Past, Present and Future.* Oxford: Clarendon Press.

——— (1968) 'Tense and Modality', in PRIOR 2003.

——— (1977) *Worlds, Times, Selves*. London: Duckworth Press.

——— (1962) 'Changes in Events and Changes in Time', in PRIOR 2003.

——— (1996) 'Some Free Thinking About Time', in J. Copeland (ed) *Logic and Reality: Essays on the Legacy of Arthur Prior*, Oxford: Clarendon Press.

——— (2003) *Papers on Time and Tense*, Oxford University Press.

REICHENBACH, (1947) *Elements of Symbolic Logic*, New York: Macmillan.

SAUNDERS, S., BARRETT, J., KENT, A., WALLACE, D. (2014), *Many Worlds*, Oxford: Oxford University Press.

SELLARS, W. (1962) *Science, Perception and Reality*, London: Routledge & Kegan Paul.

SHOEMAKER, S. (1969) 'Time without change', *Journal of Philosophy, 66*, 363–381.

SIDER, T. (1999) 'Presentism and Ontological Commitment', *Journal of Philosophy* 96, 325-347.

——— (2001) *Four dimensionalism*, Oxford: Oxford University Press.

——— (2011) *Writing the Book of the World*. Oxford University Press.

SKOW, B. (2011) "On the Meaning of the Question 'How Fast Does Time Pass'? " *Philosophical Studies* 155, pp 352-44.

——— (2015) *Objective Becoming*, Oxford: Oxford University Press.

SMITH, Q. (2002) 'Time and Degrees of Existence', in *Time, Reality and Experience*, (ed.) Craig Callender, Cambridge: Cambridge University Press.

SULLIVAN, M. (2012) 'Problems for Temporary Existence in Tense Logic.' *Philosophy Compass,* pp 43-57.

——— (2012) 'The Minimal A-Theory.' *Philosophical Studies*, vol 168, Issue 2, pp 149-174.

——— (2016), 'An A-Theory Without Tense Operators.' *Canadian Journal of Philosophy*. Vol.46, Issue 4-5, pp 735-758

WILLIAMSON, T. (2010) Barcan Formulas in Second-Order Modal Logic. In *Themes from Barcan Marcus*, ed. M. Frauchigerand W.K. Essler, 1-39, Lauener Library of Analytical Philosophy, vol. 3.

——— (2013) *Modal Logic as Metaphysics*, Oxford: Oxford University Press.

WUTHRICH, C. (2012) 'Demarcating Presentism', H. W. de Regat et al. (eds.), *EPSA Philosophy of Science: Amsterdam 2009*, The European Philosophy of Science Association Proceedings 1, pp 441-450.

ZIMMERMAN, D. W. (2004) Oxford *Studies in Metaphysics*, vol.1, Oxford: Oxford University Press.

——— (2005) 'The A-Theory of Time, The B-Theory of Time, and 'Taking Tense Seriously'. *Dialectica* Vol. 59, No. 4, pp. 401–457.

——— (2007) "The Privileged Present: Defending an 'A-Theory' of Time" in *Contemporary Debates in Metaphysics*, ed. By Ted Sider, John Hawthorne, and Dean W. Zimmerman, Malden, Mass.: Blackwell.

——— (2010) 'The A-Theory of Time, Presentism, and Open Theism.' *Science and Religion in Dialogue*, Melville Y. Stewart (ed.) Wiley-Blackwell.

——— (2011) 'Presentism and the Space-Time Manifold' in *The Oxford Handbook to the Philosophy of Time*, Craig Callendar (ed.) Oxford: Oxford University Press.

——— (2012) Handout for talk on ‘Presentism, the Moving Spotlight Theory of Time, and Timelessly Eternal Things’ at PETAF ‘Space and Time Workshop’. University of Barcelona, 13-15 December 2012.